

E-filed: 3/3/2009

IN THE UNITED STATES DISTRICT COURT
FOR THE NORTHERN DISTRICT OF CALIFORNIA
SAN JOSE DIVISION

HYNIX SEMICONDUCTOR INC., HYNIX
SEMICONDUCTOR AMERICA INC.,
HYNIX SEMICONDUCTOR U.K. LTD., and
HYNIX SEMICONDUCTOR
DEUTSCHLAND GmbH,

Plaintiffs,

v.

RAMBUS INC.,

Defendant.

No. C-00-20905 RMW

PHASE III (CONDUCT TRIAL) FINDINGS
OF FACT AND CONCLUSIONS OF LAW

RAMBUS INC.,

Plaintiff,

v.

HYNIX SEMICONDUCTOR INC., HYNIX
SEMICONDUCTOR AMERICA INC.,
HYNIX SEMICONDUCTOR
MANUFACTURING AMERICA INC.,

SAMSUNG ELECTRONICS CO., LTD.,
SAMSUNG ELECTRONICS AMERICA,
INC., SAMSUNG SEMICONDUCTOR, INC.,
SAMSUNG AUSTIN SEMICONDUCTOR,
L.P.,

NANYA TECHNOLOGY CORPORATION,
NANYA TECHNOLOGY CORPORATION
U.S.A.,

Defendants.

No. C-05-00334 RMW

1 RAMBUS INC.,

2 Plaintiff,

3 v.

4 MICRON TECHNOLOGY, INC., and
5 MICRON SEMICONDUCTOR PRODUCTS,
INC.

6 Defendants.

No. C-06-00244 RMW

7
8 This patent/antitrust litigation involves dynamic random access memory ("DRAM") interface
9 technology patented by Rambus and incorporated into industry-standard DRAMs. The litigation
10 involves four actions. In the first action (Case No. 00-20905 or "*Hynix I*"), Hynix¹ (then Hyundai
11 Electronics Industries Co., Ltd. and its subsidiaries) sued Rambus for a declaratory judgment
12 regarding various Rambus patents. The court divided the issues into three trial phases. The issue in
13 the first phase concerned whether Rambus's patent infringement counterclaims were barred by the
14 doctrine of unclean hands. On January 5, 2006 the court issued its Findings of Fact and Conclusions
15 of Law on Unclean Hands in favor of Rambus. *Hynix Semiconductor Inc. v. Rambus Inc.*, --- F.
16 Supp. 2d ----, 2006 WL 565893 (N.D. Cal. 2006). The second phase concerned Rambus's
17 allegations that Hynix's DRAMs infringed several of its patents. On April 26, 2006 a jury returned a
18 verdict that Rambus's patent claims were infringed and not invalid and that Rambus was entitled to
19 \$306,967,272 in damages. The court remitted the jury's award to \$133,584,129, which Rambus
20 accepted.

21 The third phase concerned Hynix's allegations that Rambus obtained its patents in violation
22 of a disclosure obligation to members of the Joint Electron Device Engineering Council ("JEDEC"),
23 a standards setting organization of which Rambus was a member. Hynix alleged that Rambus
24 committed antitrust and related violations by attempting to assert its patent claims against

25 ¹ By "Hynix," the court refers to the four entities sued by Rambus: Hynix Semiconductor
26 Inc., Hynix Semiconductor America Inc., Hynix Semiconductor U.K. Ltd., and Hynix Semiconductor
27 Deutschland GmbH. The latter three entities are all wholly-owned subsidiaries of Hynix
28 Semiconductor, Inc. See Docket No. 1649, C-00-20905-RMW, at 5, ¶ 4 (N.D. Cal. Feb. 2, 2006).
"Hynix" also includes Hynix Semiconductor Manufacturing America, a subsidiary named in the 05-
00334 case but not the 00-20905 case.

1 manufacturers of DRAMs that complied with the JEDEC standard. Hynix also raised a number of
 2 defenses to its infringement based on this conduct. On March 26, 2008 a jury returned a verdict in
 3 favor of Rambus and against the Manufacturers on their legal claims. With these Findings of Fact
 4 and Conclusions of Law on the equitable claims and defenses, all issues in *Hynix I* have been
 5 resolved.

6 As mentioned, there are three other cases involving Rambus, DRAM manufacturers, and
 7 Rambus's conduct at JEDEC. The court and the parties identified the issues regarding Rambus's
 8 conduct common to these cases and *Hynix I* and the court consolidated those issues for trial. Thus,
 9 these findings and conclusions apply equally to these further cases as discussed below.

10 **I. THE SCOPE OF THE CONSOLIDATED TRIAL PROCEEDINGS**

11 These Findings of Fact and Conclusions of Law are made with respect to the non-jury claims
 12 and defenses asserted by the following entities: Hynix in cases C-00-20905 and C-05-00334; Nanya
 13 Technology Corp. and Nanya Technology Corp. U.S.A. ("Nanya") in case C-05-00334; and Micron
 14 Technology, Inc., and Micron Semiconductor Products, Inc. ("Micron") in case C-06-00244. The
 15 court refers to these entities collectively as "the Manufacturers." The court consolidated for trial the
 16 claims and defenses delineated in Attachments 1-3 and 5 of the parties' July 31, 2007 Joint Case
 17 Management Statement.² The trial, which the court and the parties refer to as "the Conduct Trial,"
 18 involved the following claims and defenses:

19 **A. Consolidated Issues From *Hynix I***

20 The *Hynix I* action commenced on August 29, 2000, when Hyundai Electronics Industries
 21 Co., Ltd. and Hyundai Electronics America sought a declaratory judgment of noninfringement,
 22 invalidity, and unenforceability with respect to the following Rambus patents: U.S. Patents Nos.
 23 5,915,105, 5,953,263 , 5,954,804, 5,995,443, 6,032,214, 6,032,215, 6,034,918, 6,035,365,

24
 25
 26 ² The Samsung entities – Samsung Electronics Co., Ltd., Samsung Electronics America,
 27 Inc., Samsung Semiconductor, Inc., and Samsung Austin Semiconductor, L.P. ("Samsung") – that are
 28 parties to Case No. C-05-00334 and C-05-02298 did not assert antitrust claims, did assert some claims
 that uniquely applied to them and did not make a jury demand. Therefore, the court tried the Samsung
 claims and defenses in a separate proceeding.

6,038,195, 6,067,592, and 6,101,152.³ Hyundai Electronics Industries Co., Ltd. and Hyundai Electronics America amended their complaint on October 17, 2000 to add Hyundai Electronics U.K., Ltd. and Hyundai Electronics Deutschland GmbH as plaintiffs and to add antitrust and other claims against Rambus. In response, Rambus counterclaimed on February 5, 2001 for infringement of the patents listed above. Hynix filed a Second Amended Complaint on June 11, 2001, which added claims against Rambus for fraud and constructive fraud and reflected the intervening change in the names of the Hynix entities. On November 25, 2002, Rambus amended its counterclaim to add infringement of four additional Rambus patents: U.S. Patents Nos. 6,324,120, 6,378,020, 6,426,916, and 6,452,863. On December 16, 2002, Hynix answered the counterclaims and asserted various affirmative defenses.

As discussed, the court held a bench trial in 2005 on Hynix's unclean hands defense. Hynix contended that Rambus spoliated evidence resulting in prejudice to Hynix. The court rejected Hynix's allegations of unclean hands. In the second phase of trial, held in March and April 2006, Rambus elected to assert infringement of certain claims from the '105, '918, '120, '020, '916 and '863 patents. A jury found that the patents-in-suit were not invalid and infringed by Hynix's DDR SDRAM, GDDR SDRAM, DDR SGRAM, DDR2 SDRAM, GDDR2 SDRAM, DDR3 SDRAM, and GDDR3 SDRAM devices, and that a subset of those claims were also infringed by Hynix's SDRAM, SGRAM, and Handy SDRAM products.

As a result of the prior two trial phases and the court's rulings on Rambus's motions for summary adjudication, the following claims and defenses involving Hynix were left for trial in the consolidated Conduct Trial:

Claim/Defense	Nature	Trier of Fact
First Claim For Relief	Monopolization (15 U.S.C. § 2)	Jury
Second Claim for Relief	Attempted Monopolization (15 U.S.C. § 2)	Jury

³ Throughout this order, the court refers to specific patents by the patent's last three digits, i.e., U.S. Patent No. 5,915,105 is referred to as "the '105 patent."

Third Claim For Relief	Unfair Competition (Cal. Bus. & Prof. Code § 17200)	Court
Eighth Claim For Relief	Actual Fraud	Jury
Fifth Affirmative Defense	Equitable Estoppel "relating to JEDEC [and] JEDEC's Disclosure Rules"	Court
Sixth Affirmative Defense	Equitable Estoppel based on Rambus's conduct during the course of its RDRAM relationship with Hynix	Court
Seventh Affirmative Defense	Waiver	Court
Ninth Affirmative Defense	Prosecution Laches	Court
Eleventh Affirmative Defense	Unclean Hands (not including spoliation)	Court

B. Consolidated Issues From Case No. 05-00334

The '334 action commenced on January 25, 2005, when Rambus sued Hynix, Infineon, Nanya, and Inotera Memories, Inc. for infringement of the following Rambus patents: U.S. Patent Nos. 6,182,184, 6,260,097, 6,266,285, 6,314,051, 6,324,120, 6,378,020, 6,426,916, 6,452,863, 6,493,789, 6,496,897, 6,546,446, 6,564,281, 6,584,037, 6,697,295, 6,701,446, 6,715,020, 6,781,696, and 6,807,598. Inotera Memories, Inc. and Infineon were later dismissed from the case.

Rambus filed its First Amended Complaint on June 6, 2005, asserting the same patents as the original January 25, 2005 complaint, but adding the Samsung entities as defendants. Hynix answered the First Amended Complaint and counterclaimed on June 27, 2005. It filed a First Amended Answer and First Amended Counterclaims on February 22, 2007. Nanya answered the First Amended Complaint and counterclaimed on July 18, 2005. Nanya filed a First Amended Answer and First Amended Counterclaims on July 9, 2007. The Hynix and Nanya answers and counterclaims assert equitable defenses including prosecution laches, equitable estoppel, waiver, laches, and claims for declaratory judgment, monopolization, attempted monopolization, fraud, and unfair competition (Cal. Bus. & Prof. Code § 17200).

In response to Hynix and Nanya's answers and counterclaims, Rambus filed its answer and

Counterclaims in Reply on July 9, 2007 and July 24, 2007 respectively. In these Counterclaims in Reply, Rambus added infringement claims against, *inter alia*, DDR3 SDRAM and GDDR4 SDRAM products. On July 30, 2007, Hynix replied to Rambus's Counterclaims in Reply and filed its own Counterclaims in Reply to the Counterclaims in Reply, alleging the same claims and defenses as its First Amended Answer and First Amended Counterclaims had alleged. Rambus replied to Hynix's Counterclaims in Reply on August 20, 2007. On December 21, 2007, Nanya replied to Rambus's Counterclaims in Reply and filed its own Counterclaims in Reply to the Counterclaims in Reply, alleging the same claims and defenses as its First Amended Answer and First Amended Counterclaims had alleged earlier. From these pleadings, the court consolidated for trial the following claims and defenses:

1. Hynix's Claims and Defenses in C-05-00334

Hynix's claims and defenses from the '334 action that were tried in the Conduct Trial are:

Claim/Defense	Nature	Trier of Fact
First Counterclaim	Monopolization (15 U.S.C. § 2)	Jury
Second Counterclaim	Attempted Monopolization (15 U.S.C. § 2)	Jury
Third Counterclaim	Unfair Competition (Cal. Bus. & Prof. Code § 17200)	Court
Fourth Counterclaim	Fraud	Jury
Eighth Affirmative Defense	Prosecution Laches	Court
Ninth Affirmative Defense	Estoppel regarding JEDEC	Court
Tenth Affirmative Defense	Estoppel regarding "Other DRAM"	Court
Eleventh Affirmative Defense	Waiver	Court
Twelfth Affirmative Defense	Unclean Hands (not including spoliation)	Court
Thirteenth Affirmative Defense	Laches	Court

2. Nanya's Claims and Defenses

Nanya's claims and defenses from the '334 action that were tried in the Conduct Trial are:

Claim/Defense	Nature	Trier of Fact
First Counterclaim	Monopolization (15 U.S.C. § 2)	Jury
Second Counterclaim	Attempted Monopolization (15 U.S.C. § 2)	Jury
Third Counterclaim	Unfair Competition (Cal. Bus. & Prof. Code § 17200)	Court
Fourth Counterclaim	Fraud	Court ⁴
Seventh Counterclaim	Declaratory Judgment of Unenforceability	Court
Eighth Affirmative Defense	Prosecution Laches	Court
Ninth Affirmative Defense	Estoppel regarding JEDEC	Court
Eleventh Affirmative Defense	Laches	Court
Twelfth Affirmative Defense	Equitable Estoppel	Court
Thirteenth Affirmative Defense	Waiver	Court
Sixteenth Affirmative Defense	Patent Misuse	Court

C. Consolidated Issues From Case No. 06-00244

The '244 action commenced on January 13, 2006, when Rambus sued Micron for patent infringement. Rambus then filed a Corrected First Amended Complaint on April 18, 2006 alleging infringement of the following Rambus patents: U.S. Patent Nos. 6,182,184, 6,260,097, 6,266,285, 6,314,051, 6,493,789, 6,496,897, 6,546,446, 6,564,281, 6,584,037, 6,697,295, 6,701,446, 6,715,020, 6,781,696, and 6,807,598. Micron answered the Corrected First Amended Complaint and alleged its own Counterclaims on June 2, 2006. It then filed a First Amended Answer and First Amended Counterclaims on May 30, 2007. Micron's answer and counterclaims include equitable defenses of prosecution laches, equitable estoppel, waiver, implied license, promissory estoppel, laches, and

⁴ Rambus moved *in limine* to preclude presentation of the Manufacturers' fraud claims to a jury because, according to Rambus, the Manufacturers had no evidence that they had suffered damages as the result of the alleged fraud. The court found that Nanya had not offered any evidence of fraud damages but nevertheless let the fraud issue as to Nanya go to the jury for an advisory verdict. Sufficient evidence was offered to support a claim for fraud damages by Hynix and Micron. *Hynix Semiconductor Inc. v. Rambus, Inc.*, 527 F. Supp. 2d 1084 (N.D. Cal. 2007).

claims for declaratory judgment, monopolization, attempted monopolization, fraud, and unfair competition (Cal. Bus. & Prof. Code §17200) and fraud. In response to Micron's answers and counterclaims, Rambus filed its answer and Counterclaims in Reply on July 9, 2007. In these Counterclaims in Reply, Rambus added infringement claims against DDR3 SDRAM products. On December 3, 2007, Micron replied to Rambus's Counterclaims in Reply and filed its own Counterclaims in Reply to the Counterclaims in Reply, alleging the same claims and defenses as its First Amended Answer and First Amended Counterclaims had alleged. Rambus answered Micron's Counterclaims in Reply on December 26, 2007.

Micron's claims and defenses from the '244 action that were tried in this phase of the trial of this action are:

Claim/Defense	Nature	Trier of Fact
Fifteenth Counterclaim	Monopolization and Attempted Monopolization (15 U.S.C. § 2)	Jury
Eighteenth Counterclaim	Fraud	Jury
Twenty-first Counterclaim	Unfair Competition (Cal. Bus. & Prof. Code § 17200)	Court
First through Fourteenth Counterclaims	Declaratory Judgments of Unenforceability	Court
Ninth Affirmative Defense	Implied License	Court
Thirteenth Affirmative Defense	Equitable Estoppel	Court
Fourteenth Affirmative Defense	Waiver	Court
Sixteenth Affirmative Defense	Laches	Court

II. FINDINGS OF FACT

The focus of the Conduct Trial was on the disclosure obligation, if any, that Rambus had to JEDEC or its members with respect to possible patent coverage of any DRAM built in accordance with industry standards adopted by JEDEC. The court first makes findings of fact with respect to

whether JEDEC members had an expectation that Rambus would disclose any intent it had to seek patent coverage of any standard being proposed at JEDEC. The court then sets forth its factual findings relevant to whether Rambus misled any of the Manufacturers by its conduct at JEDEC. Finally, the court makes findings relevant to whether Rambus misled any Manufacturer by its dealings with that Manufacturer.

A. 1991-1996: Rambus and its Involvement with JEDEC

1. Rambus was founded in 1990 by two professors, Dr. Michael Farmwald and Dr. Mark Horowitz, who had been working together to address the increasing gap between microprocessor performance and DRAM performance. Conduct Trial Transcript at 4079:8-4081:24, 4091:9-4095:10, 5489:23-5490:3 ("Tr. ____").
2. On April 18, 1990, Drs. Farmwald and Horowitz filed a patent application, serial number 07/510,898 ("the '898 application") containing numerous claims relating to their efforts to solve this performance gap problem. Exh. 5131.
3. On April 16, 1991, Rambus filed an international patent application pursuant to the Patent Cooperation Treaty (the "PCT application"). Exh. 3583. The PCT application was published on October 31, 1991. The specification contained in the PCT application was identical to that contained in the '898 application and described, according to Rambus, the inventions that are at issue in Rambus's infringement claims. *Id.*
4. Rambus attended its first JEDEC meeting as a guest on December 4-5, 1991. Ex. 3001 at 2. Rambus attended its final JEDEC meeting in December 1995. Tr. 1288:5-9. Rambus formally resigned from JEDEC by letter in June of 1996. Tr. 960:24-961:4.
5. Hynix was found to infringe all the patents Rambus selected to assert in the *Hynix I* trial. None of those patents were applied for until well after Rambus had resigned from JEDEC. Those patents are:

Patent Number	Title	Date of Application	Date of Issue
5,915,105	Integrated Circuit I/O Using a High Performance Bus Interface	11/26/1997	06/22/1999

6,034,918	Method of operating a Memory Having a Variable Data Output Length and a Programmable Register	02/19/1999	03/07/2000
6,324,120 B2	Memory Device Having a Variable Data Output Length	02/08/2001	11/27/2001
6,378,020 B2	System Having Double Data Transfer Rate and Integrated Circuit Therefor	04/10/2000	04/23/2002
6,426,916 B2	Memory Device Having a Variable Data Output Length and a Programmable Register	02/27/2001	07/30/2002
6,452,863 B2	Method of Operating a Memory Device Having a Variable Data Input Length	02/27/2000	09/17/2002

6. Rambus's patent infringement claims against Hynix, Nanya and Micron in the '334 and '244 cases have been consolidated for trial but trial has not yet occurred. Not one of the patents Rambus has selected for assertion in the consolidated proceeding was applied for until approximately three-and-one-half years after Rambus resigned from JEDEC. Those patents include the '120, '020, '916, and '863 listed above plus the following:

Patent Number	Title	Date of Application	Date of Issue
6,182,184	Method of Operating a Memory Device Having a Variable Data Input Length	02/22/2000	01/30/2001
6,266,285	Method of Operating a Memory Device Having Write Latency	05/08/2000	07/24/2001
6,314,051	Method of Operating a Memory Device Having Write Latency	07/31/2000	11/06/2001
6,546,446	Synchronous Memory Device Having Automatic Precharge	12/21/2001	04/08/2003
6,584,037	Memory Device Which Samples Data after an Amount of Time Transpires	02/04/2002	06/25/2003
6,751,696	Memory Device Having a Programmable Register	04/13/2001	06/15/2004

B. Background Regarding JEDEC

- 1 7. JEDEC is a standards development organization. It develops standards for semiconductor
2 products, including DRAMs. Tr. 444:9-24.
- 3 8. JEDEC is a non-profit organization. It formerly existed as part of the Electronic Industry
4 Association (EIA), but it is now an independent organization. Tr. 457:13-458:3; 619:5-
5 621:18. While Rambus was a member of JEDEC, JEDEC operated as part of the EIA.
- 6 9. JEDEC has a board of directors. Below the board of directors, JEDEC has approximately 50
7 committees. *See* Tr. 457:21-460:13.
- 8 10. The DRAM standards relevant to this case were developed by one such committee, JC-42.3.
9 *See* Tr. 539:1-11.
- 10 11. JEDEC's membership comprises numerous companies involved in industries related to
11 semiconductors. It includes manufacturers like Hynix, Micron, Nanya and Samsung. It also
12 includes users like HP, IBM, Intel and Sun. Tr. 446:5-446:25.
- 13 12. The JC-42.3 committee met about four to seven times a year. Meetings typically revolved
14 around presentations made by committee members, which triggered discussions about the
15 technology or feature that was the subject of the presentation. *See* Tr. 460:14-462:13.
16 Meetings also included balloting during which members voted (2/3 majority required) on the
17 contents of the standard being developed. Tr. 463:21-464:9.
- 18 13. JEDEC typically prepared minutes for all of its committee meetings. The minutes covered
19 the "highlights" of activity at the meetings and are distributed to every member. Tr. 464:10-
20 24. The minutes strived to reflect the "key decisions" and to "note presentations." *Id.* After
21 a meeting, the minutes were distributed to every member. Tr. 464:21-24. A meeting's
22 minutes were normally approved at the next committee meeting. *See, e.g.*, Ex. 3005 at 4
23 (agenda item immediately following introductions was corrections and approval of prior
24 meeting minutes). The fidelity of the minutes is significant because on various topics the
25 minutes disagree with the trial testimony of various witnesses. Given that approximately
26 fifteen years have elapsed and the natural biases of many of the witnesses, the court finds
27 that the minutes are a more trustworthy source of evidence regarding what happened at JC-
28

42.3's meetings than most of the witness testimony.

C. JEDEC's Patent Policy – JEDEC's Manuals

14. When asked whether JEDEC had a "big rule book," Desi Rhoden – a JEDEC board member and paid expert witness of the Manufacturers – responded, "Not really. Engineers wouldn't read it anyway, I suppose." Tr. 479:25-480:2.⁵

15. Nonetheless, a few manuals existed. When Rambus joined JEDEC in 1991, JEDEC Manual of Organization and Procedure 21-H was in effect. Tr. 595:22-596:5; Ex. 6769. Manual 21-H lacks any rules or guidelines regarding disclosure of patent rights. See Ex. 6769.

16. Thus, while Manual 21-H was in effect, any written patent policy applicable to JEDEC trickled down from EIA's rules. See Tr. 620:8-622:9. For example, at Richard Crisp's first JEDEC meeting, the minutes reflect that JC-42.3 chairman Jim Townsend presented "the EIA patent policies." Ex. 3002 at 5; Tr. 1039:8-1040:6. The "patent policy," section 3.4 of the EIA Style Manual from August 1990, shown to the attendees was:

Avoid requirements in EIA standards that call for the exclusive use of a patented item or process. No program standardization shall refer to a patented item or process unless all of the technical information covered by the patent is known to the formulating committee or working group, and the committee chairman has received a written expression from the patent holder that one of the following conditions prevails:

(1) a license shall be made available without charge to applicants desiring to utilize the patent for the purpose of implementing this standard, or

(2) a license shall be made available to applicants under reasonable terms and conditions that are demonstrably free of any unfair discrimination.

Ex. 3002 at 28; see Tr. 1040:7-1041:15.

17. The EIA patent policy shown at the February 1992 JC-42.3 meeting says nothing about patent applications. It says nothing about a member's intentions to file for patent coverage. It is unclear whether or how it imposes a duty on members of JEDEC to disclose issued

⁵ On cross-examination, Mr. Rhoden wavered, testifying that JEDEC's patent policy was "written down." Tr. 627:25-628:20. Mr. Rhoden then backed off, suggesting he believed that he understood JEDEC's patent policy more as something that was explained at meetings to the engineers present. *Id.* 628:22-25. Incidents like this one, and other conflicts in his testimony described below, as well as an obvious pro-JEDEC, anti-Rambus bias, undermined Mr. Rhoden's credibility.

patents, but it does require JEDEC not to include patented items or processes in a standard unless certain licensing conditions pertain.

18. At the September 1993 JC-42.3 meeting, the attendees saw a different patent policy presented. Tr. 506:10-507:16; 509:10-510:6; Ex. 3214 at 10. This "EIA/JEDEC PATENT POLICY SUMMARY" read as follows:

Standards that call for the use of a patented item or process may not be considered by a JEDEC committee unless all of the relevant technical information covered by the patent *or pending patent* is known to the committee, subcommittee, or working group. In addition, the committee Chairperson must have received written notice from the patent holder *or applicant* that one of the following conditions prevails:

(1) a license shall be made available without charge to applicants desiring to utilize the patent for the purpose of implementing this standard(s), or

(2) a license shall be made available to applicants under reasonable terms and conditions that are demonstrably free of any unfair discrimination

Ex. 3214 at 12 (emphasis added to note substantive changes); see Tr. 509:10-15. At page 3 of the minutes, this attachment is described as "the policies." Ex. 3214 at 3. On the actual attachment, the policy is clearly marked "JEDEC Manual No. 21-I (Draft 3.1)." Ex. 3214 at 12. It also states "This material is a proposed revision of Std. 21-H and has not been approved by JEDEC." *Id.*

19. Unlike the EIA policies previously shown at JC-42.3 meetings, this policy mentions patent applications but still does not mention "intentions" to file patent applications. The policy remains focused on the work of the committee and whether it may approve standards including patented technology. The policy does not clearly explain any disclosure mechanism.

20. The "final" version of Manual 21-I contains language that is much more detailed than the draft summary shown in September 1993. The version of Manual 21-I in evidence contains three provisions touching on patent disclosure, section 9.3, 9.3.1, and 9.3.2. *See* Ex. 3215, 19-20; Tr. 517:14-22 (admitting exhibit 3215).

21. The pertinent portion of section 9.3, titled "Reference to Patented Products in EIA Standards," reads as follows:

EIA and JEDEC standard and nonproduct registration (e.g., package outline drawings) that require the use of patented items should be considered with great care. While there is no restriction against drafting a proposed standard in terms that include the use of a patented item** if technical reasons justify the inclusion, committees should ensure that no program of standardization shall refer to a product on which there is a known patent unless all the relevant technical information covered by the patent is known to the formulating committee [sic] subcommittee, or working group. If the committee determines that the standard requires the use of patented items, then the committee chairperson must receive a written assurance from the organization holding the rights to such patents that a license will be made available without compensation to applicants desiring to implement the standard, or written assurance that a license will be made available to all applicants under reasonable terms and conditions that are demonstrably free of any unfair discrimination.

*** For the purpose of this policy, the word "patented" also includes items and processes for which a patent has been applied and may be pending.

22. The pertinent portion of section 9.3.1, titled "Committee Responsibility Concerning Intellectual Property," reads as follows:

The Chairperson of any JEDEC committee, subcommittee, or working group must call to the attention of all those present the requirements contained in the EIA Legal Guides, and call attention to the obligation of all participants to inform the meeting of any knowledge they may have of any patents, or pending patents, that might be involved in the work they are undertaking. Appendix E (Legal Guidelines Summary) provides copies of viewgraphs that should be used at the beginning of the meeting to satisfy this requirement. Additionally, all participants must be asked to read the statement on the back of each EIA Sign-in/Attendance Roster. . . .

23. Section 9.3.2, "Policy Statements on EIA/JEDEC Sign-in/Attendance Rosters," states that "[t]he policy statements reproduced on the reverse side of EIA/JEDEC Sign-in/Attendance Rosters shall become an integral part of all Committee and working group meetings' minutes, and a statement shall be included in the minutes indicating compliance with the foregoing policy."
24. Finally, Appendix E includes the sample viewgraph that was intended to convey the patent policies to committee meeting attendees. Ex. 3215 at 27. The sample viewgraph is substantially similar to the one shown at the September 1993 meeting and reproduced above in paragraph 18. The sample viewgraph does not mention section 9.3.1's "obligation of all participants to inform the meeting of any knowledge they may have of any patents, or pending patents, that might be involved in the work they are undertaking."

25. It is not clear when or whether JEDEC Manual 21-I was approved. The admitted version of manual 21-I bears the date "October 1993." *See* Ex. 3215 at 1. Mr. Rhoden believed that the seals and appearance of the manual confirm that it was approved by JEDEC by October 1993. Tr. 767:4-768:1. On the other hand, testimony from John Kelly, the president of JEDEC and general counsel to EIA in 2001, suggested that manual 21-I was never properly approved by the appropriate governing body. *See* Tr. 5168:24-5169:22; Docket No. 3573 (Mar. 19, 2008) (lodged video testimony of John Kelly played at trial).

26. It is also not clear when or how JEDEC Manual 21-I was distributed to JEDEC members. Rambus's JEDEC representative Richard Crisp did not receive a copy of Manual 21-I until the middle of 1995, and he received it only after making a special request for "some rules" because "[he] was considering making a proposal for standardization." Tr. 1083:14-1084:8.

27. Putting aside whether Manual 21-I was ever officially approved, it appears to have guided JEDEC's activities throughout the remaining period of Rambus's attendance, at least in name. Tr. 771:13-772:5. For example, the minutes from the JC-42.3 committee meeting of September 1994 conclude with the prominent statement "THIS MEETING WAS CONDUCTED IN ACCORDANCE WITH EIA LEGAL GUIDES AND THE JEDEC MANUAL OF ORGANIZATION AND PROCEDURE 21-I." Ex. 3005 at 13; Tr. 611:3-14; 1208:10-20 (admitting exhibit into evidence). On the other hand, the "patent policies" presented by the chairman, Jim Townsend, and included as attachment A to the minutes of the September 1994 meeting, continue to recite the EIA policy from 1990 discussed above and attached to the 1992 minutes. *See* Ex. 3005 at 14; Tr. 611:21-612:10. Attachment A does not include the viewgraph purportedly required by Manual 21-I. It does not mention an obligation by members to disclose anything.

28. Whichever official manual governed JEDEC's conduct, it is clear from the testimony of the secretary of JC-42 Kenneth McGhee and the manuals in evidence that no written policy ever required a JEDEC member to "reveal its intention . . . to file patent applications in the future." Docket No. 3551 (Mar. 17, 2008) (lodged video testimony of Kenneth McGhee

1 played at trial).

2 **D. JEDEC's Patent Policy – JEDEC's Sign-in Sheets**

3 29. Mr. Rhoden also testified at length about the sign-in sheets used at JC-42.3 meetings. *See* Tr.
4 520:17-522:6; Ex. 3233. According to Mr. Rhoden, JEDEC's patent policies were "very
5 important" and the sign-in sheets "ma[de] sure that nobody can forget it." Tr. 521:17-21. To
6 that end, the sign-in sheet included on its backside language about JEDEC's patent policies.
7 Tr. 521:23-522:6.

8 30. The sample sign-in sheet reproduces what, at first glance, appears to be section 9.3 of
9 Manual 21-I. *Compare* Ex. 3233 at 2 *with* Ex. 3215 at 19. Upon inspection, an important
10 difference emerges. The sample sign-in sheet refers only to a "patented item." It does not
11 mention anything about features covered by pending applications. The sample sign-in sheet
12 also lacks any language resembling section 9.3.1 of Manual 21-I. The sign-in sheet says
13 nothing about any obligation to disclose any known patents or applications. It speaks only of
14 using "great care" in considering whether to use a patented feature in a standard and of the
15 obligation of the committee chairperson to ensure that no standard include a patented feature
16 unless assurances have been made.

17 31. Notably, the sign-in sheet includes other reminders aimed at ensuring JEDEC's and its
18 members' compliance with the antitrust laws. Among those provisions is the reminder that
19 "the exchange of company information relating to future plans affecting the design, research
20 and development, production, and distribution or marketing of products" is improper. Ex.
21 3233 at 2; *see* Tr. 623:8-627:24. From the evidence presented at trial, a JEDEC member did
22 not have guidance and would probably not understand, at least from any information
23 acquired from JEDEC, how a JEDEC member could safely comply with both (a) the
24 purported duty requiring a member to disclose its "intentions" to file a patent application as
25 advocated by the Manufacturers and (b) the duty *not* to disclose a company's future plans
26 relating to the research and development of products given the intertwined nature of
27 conducting research and preparing a patent application.
28

32. By contrast to Mr. Rhoden's testimony that JEDEC's patent policies were "very important" and that the sign-in sheets were used to "make sure that nobody can forget it," Micron's Terry Lee (a JEDEC representative) explained the flaws in the sign-in process: "[T]he way the sign-in process worked is they would just pass around a stapled form and you'd check your name off, or you'd sign your name on. And if I was out of my seat at the time, I would sign in. But sometimes you were out of the room talking or checking in or out of the hotel." Tr. 3169:10-22. This process explains why Mr. Lee "usually" but "not always" signed in at meetings. Tr. 3169:10-15. Based on Mr. Lee's testimony, it is doubtful that many JEDEC representatives read the EIA patent policy on the reverse side of the sign-in sheet or that it meaningfully informed their expectations.

E. JEDEC's Patent Policy – JEDEC's Ballots

33. In addition to sign-in sheets, Mr. Rhoden testified that JEDEC's ballots were "another expression of the importance that JEDEC placed upon disclosure of [intellectual property]." Tr. 524:1-4. The Manufacturers submitted a ballot from June 1992 as a sample of the "ballot form used at JEDEC at or about [1992]." *Id.* 522:12-523:3; Ex. 3613.

34. The Manufacturers did not submit ballot forms from the 1993-1996 period, leading the court to infer that JEDEC did not change the ballot forms with respect to patent disclosure during that time period.

35. The 1992 ballot form states: "If anyone receiving this ballot is aware of patents involving this ballot, please alert the committee accordingly during your voting response." Ex. 3613 at 2; Tr. 522:17-25. The ballot form does *not* state that anyone receiving the ballot must disclose patent applications or intentions to file applications of which the recipient is aware.

36. Rambus's JEDEC representatives received ballots instructing them to disclose such patents. Tr. 524:5-9.

37. When asked whether Rambus "actually voted in any of the elections that they . . . were presented ballots for," Mr. Rhoden testified: "Yes. They, they voted quite often, actually. I counted the ballots. That's how I know." Tr. 524:10-25. He further testified: "The chairman

– the person that's actually doing the, the distribution of the ballots is the person that winds up counting them. So in this case, it was associated with SDRAM, and I was the one who actually counted the ballots. So, yes, I counted their ballots many times." *Id.*

38. To the extent Mr. Rhoden's testimony suggests that Rambus voted at more than one meeting, it is misleading. On the contrary, the unrebutted evidence of Rambus's voting record presented at trial is as follows. Rambus voted at only one meeting. Tr. 1003:23-1004:6. The ballots concerned four technologies that the committee was considering to be included in SDRAM. *Id.* Rambus's representative at the time, Richard Crisp, voted "no" as to each technology. *Id.*; Tr. 1154:23-25; Tr. 1383:12-18. The technologies on the ballot included programmable CAS latency and programmable burst length. *See* Ex. 3613 at 3.

39. After Rambus voted "no," Hitachi's representative Farhad Tabrizi criticized Rambus for its vote. Tr. 1385:7-23 (Crisp); Tr. 3780:9-13 (Tabrizi). Mr. Tabrizi explained that his criticism was based on his opinion that Rambus's "no" vote was intended to delay the standardization of SDRAM. Tr. 3780:9-3782:16. While Mr. Tabrizi initially testified that he made this criticism privately, Tr. 3780:20-3781:1, his refreshed recollection was that he criticized Rambus in front of many other JEDEC members and that the rest of the committee agreed with his criticism of Rambus, Tr. 3782:8-16.

40. Following this incident, Mr. Crisp's superior Dave Mooring instructed him not to vote at JEDEC meetings. Rambus (through Mr. Crisp) never voted again. Tr. 1385:24-1386:9.

F. JEDEC's Patent Policy – Other Minutes' Records of the Patent Policy Presentations

41. As discussed above, the JC 42.3 committee meeting minutes from February 1992 attached EIA's policy referring to the use of features covered by issued patents. The September 1993 minutes attached a draft of the "policy summary" of Manual 21-I that suggested that standards should not include features covered by pending patents. The September 1994 minutes state that Manual 21-I governed the conduct of the meeting, but attached the old EIA guidelines that do not mention pending patents.

42. The minutes from the September 11, 1995 meeting include the familiar 1990 EIA policy

(seen in the February 1992 and September 1994 minutes) regarding the use of features covered by issued patents. Ex. 3224 at 20; Tr. 1107-20-1109:5 (admitting the exhibit into evidence). The attachment of the "patent policy" does not include the 21-I viewgraph mentioning applications. The minutes include no other "patent policy."

43. The attachment from the September 1995 meeting lays out the following procedure:

- Show JEDEC Patent Policy at each Task Group and Committee meeting.
- Include JEDEC Policy in each committee's official minutes.
- Request Presentation Sponsors to state their Company's patent position.
- Continue to ask for ballot response forms to indicate patent position.
- Submit proposed ballot items known to have patents to EIA Legal Counsel.
- Review items identified as of potential patent interest at each meeting, and resolve patent status prior to (choose one):

- A. Presentation
- B. Approval to go to Ballot
- C. Ballot Approval
- D. Ballot Submission to Council
- E. Ballot Approval by Council

Ex. 3224 at 20. An identical "procedure" appears in the attachment to the September 1994 minutes. See Ex. 3005 at 14.

44. This procedure – in use long after the purported adoption of Manual 21-I – "request[ed] *presentation sponsors* to state their Company's patent position." Such a requirement accords well with principles of equitable estoppel – that a JEDEC member could rely on the assumption that if a sponsor advocated a particular standard the sponsor's company did not have and had not applied for patent coverage on the standard. A reasonable inference, however, is that members other than presentation sponsors were not expected to disclose any knowledge they possessed of patents, patent applications, or intentions to file patent applications anytime such materials related to the work of the committee. Also curious is the procedure's repeated reference to a need to "*continue* to ask for ballot response forms to indicate patent position." The sensible inference from this bullet point in the patent policy procedure is that members of JC-42.3 *repeatedly* failed to disclose patent positions on ballots, despite the wording on the ballots. Such repeated failure does not reconcile with Mr. Rhoden's belief that JEDEC members shared a broad disclosure expectation.

45. Before every JC-42.3 meeting, JEDEC held a plenary session for all of the JC-42

committees. Tr. 3839:16-25. At the December 9, 1996 JC-42 plenary session (i.e., shortly after Rambus's resignation), the combined committees went over the "EIA/JEDEC patent policies" and attached them. Ex. 8307 at 4; Tr. 3838:23-3839:4 (admitting pages 1, 4 and 10 of Ex. 8307). Page 10 of the minutes show the "patent policy." Tr. 3840:21-3841:3. The attached "patent policy" is an updated (1995) version of the EIA rule urging the committee to "avoid requirements in EIA Standards that call for use of a patented item or process." Ex. 8307 at 10. No mention of patent applications appears in the attachment. *See id.* No mention of disclosure obligations appears in the attachment. *See id.* The same 5-step procedure discussed above also appears in the December 1996 plenary session minutes. *Id.*

46. In 1997 in correspondence between Hynix's Farhad Tabrizi and JEDEC, Mr. Tabrizi asked for "a copy of the JEDEC patent laws or part of the JEDEC bylaws that deals with patent and patent disclosure and licensing." Jim Townsend wrote back: "[T]hat is in every set of minutes- we shgow [sic] it at the plenary session each time. The exact p[aragraphs] [sic] are cited and reproduced as part of the cover material." Ex. 6293; Tr. 3835:10-3838:5. Mr. Tabrizi understood Mr. Townsend to be telling him that if Mr. Tabrizi consulted the minutes, he would find the patent policy. Tr. 3838:2-5.

47. Minutes from other JC-42.3 meetings following the 21-I policy were authenticated, e.g., December 1994 (Ex. 3491), March 1995 (Ex. 3492), May 1995 (Ex. 3033), January 1996 (Ex. 3070), and March 1996 (Ex. 3080). Tr. 1301:17-1304:5. Most of these exhibits were never received into evidence, and the pages of the exhibits that were eventually received did not relate to patent policies.

G. JEDEC's Patent Policy – Patent Tracking List

48. A prominent feature of the committee's minutes was Jim Townsend's "patent tracking list." According to Desi Rhoden, the list kept track of everything "that has been disclosed inside the committee so we can make appropriate decisions as we're moving forward on the standards." Tr. 471:21-473:13.

49. Jim Townsend introduced the patent tracking list at JC-42.3's meeting in December of 1991

1 (Rambus's first meeting). *See* Ex. 3003 at 11. The minutes reflect that Texas Instruments
2 (TI) "asked what the purpose of the list was." *Id.* The minutes note the response: "The
3 purpose was only to track and identify patented items of Committee proposals. Companies
4 who hold patents identified can respond to Committee, *if they wish.*" *Id.* (emphasis added).
5 50. When confronted with the minutes' statement that members could respond to the patent
6 tracking list "if they wish," Mr. Rhoden testified "well, they – they – perhaps the wording is
7 not right. But they are required to disclose. They were required to disclose at this time. So
8 the – they can respond if they wish, but it was – it's not optional." Tr. 637:17-22. Mr.
9 Rhoden previously testified that the minutes reflect the "highlights" and "key decisions" of
10 meetings. He conceded that no one corrected the minutes to reflect the "not optional" nature
11 of patent disclosure in 1991. *Id.* 637:23-638:8.
12 51. The patent tracking list from the September 1993 meeting was admitted into evidence and
13 discussed. *See* Tr. 471:13-474:22; Ex. 3005 at 16-18. The entries listed the "patent number,"
14 holder, subject matter or feature, the source of the information, and the committee whose
15 work the patent involved. Ex. 3005 at 16-18. A portion of the September 1993 tracking list
16 is reproduced below:
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Patent Issues to Track

Patent Number	Holder	Subject	Source	Status
3,771,145	P. Weiner	ROM Addressing	Toshiba	JC42.3
?	AMD	Slew Rate-CTT	Ramtron	JC42.3
		Negative GTL	AT&T	JC16
Japan?	AMP	Small Outline SIMM	AMP	JC42.5
(3)	AMP	SIMM SOCKETS	AMP	JC42.5
4,851,834	DEC	3-Port VRAM	DEC	JC42.3
	Foxconn	card polarization	Foxconn	JC42.5
pending	Fujitsu	VSMP	Fujitsu	JC42.3
	Gould	ZIP-SIP	HP	JC42.5
4,811,299	Hitachi	WCER	Hyundai	JC42.3
pending	Hitachi	ST-ZIP Package	Hitachi	JC42.5
Further Study	Hitachi?	Addressing with Redundant Address	IBM	JC42.3
4,928,265	Hitachi	SDRAM	Toshiba	JC42.3
5,083,296	Hitachi	SDRAM	Toshiba	JC42.3
4,984,214	IBM	Half SAM	IBM	JC42.3
pending	IBM	8 byte SIMM	IBM	JC42.5
	IBM?	BGA	Toshiba	JC42.3
5,126,975	IDTI	Burst Mode	Unisys	JC42.3

52. A few aspects of the list deserve attention. First, the entire list runs three pages and contains sixty entries. Three of the entries (all included in the excerpt shown above) are "pending," i.e., patent applications. In other words, the patent tracking list reflects that as of September 1993 there had been only three instances of a JEDEC representative disclosing a pending patent application that related to the work of the committee.

53. Approximately one-third of the entries on the list reflect a "source" that is different than the

"holder." In other words, a substantial portion of the "patent issues to track" were not voluntarily disclosed but first raised by others. This explains why the patent tracking list was referred to as "the squealer's list" among the members of JC-42.3. Tr. 4707:17-4708:9 (testimony of Alan Grossmeier, Cray's JEDEC representative).

54. The last patent tracking list in evidence comes from JC 42's plenary session from December 1996. See Ex. 8307 at 11-12; Tr. 8341:4-17 (admitting pages 11 and 12). For comparison, the same portion of the list is reproduced below:

Patent Issues to Track

Patent Number	Holder	Subject	Source	Status
3,771,145	P. Weiner	ROM Addressing	Toshiba	JC42.3
?	AMD	Slew Rate-CTT	Ramtron	JC42.3
		Negative GTL	AT&T	JC16
5,383,792	AMP	SO SIMM Socket	AMP	JC42.5
[3]	AMP	SIMM SOCKETS	AMP	JC42.5
4,649,522	AT&T	EDO		JC42.3
4,851,834	DEC	3-Port VRAM	DEC	JC42.3
	Foxconn	card polarization	Foxconn	JC42.5
pending	Fujitsu	VSMF	Fujitsu	JC42.3
	Gould	ZIP-SIP	HP	JC42.5
4,811,295	Hitachi	WCBR	Hyundai	JC42.3
pending	Hitachi	ST-ZIP Package	Hitachi	JC42.5
Further Study	Hitachi?	Addressing with Redundant Address	IBM	JC42.3
4,928,365	Hitachi	SDRAM	Toshiba	JC42.3
5,083,296	Hitachi	SDRAM	Toshiba	JC42.3
5,396,102	Hitachi	DRAM offset on SIMM		JC42.3
pending	Hitachi	SSTL	Hitachi	16/42.3
4,984,214	IBM	Half SAM	IBM	JC42.3
pending	IBM	8 byte SIMM	IBM	JC42.5
	IBM?	BGA	Toshiba	JC42.3
?	IBM	FBM/EDO/SD DIMM COMPAT Microb		JC42.3
5,513,135	IBM	SDRAM DIMM	IBM	JC42.3
5,126,575	INTI	Burst Mode	Unisys	JC42.3

- 1 55. The list is notable for its similarities. The three previously disclosed "pending" patent
2 applications remain pending, over three years later. The Hitachi matter that required "further
3 study" in September of 1993 continued to require "further study" at the end of 1996.
- 4 56. In total, the tracking list as of December 1996 comprised 84 entries. In addition to three
5 prior "pending" disclosures (all of which remained "pending"), the list identified two further
6 disclosures of "pending" applications related to a feature.
- 7 57. In other words, over the span of two years (implying at least eight meetings of JC-42), the
8 committee had identified 24 new patent issues to track, or approximately 3 per meeting. At
9 each meeting of JC 42's various committees, Desi Rhoden believed that "fifty or one hundred
10 [presentations] would not be uncommon." Tr. 463:6-11. Based on Mr. Rhoden's
11 approximation and the two patent tracking lists, the court estimates that roughly (and
12 generously) 1 in 15 presentations about a feature or technology at JEDEC also included a
13 disclosure of a "patent issue." *Compare with* Tr. 552:2-22 (Rhoden testimony about how
14 disclosures happened at presentations).
- 15 58. The December 1996 list reflects no disclosures of Hyundai (now Hynix) intellectual
16 property. The list reflects two disclosures of Micron intellectual property, both of which
17 were on the September 1993 list. The list reflects no disclosures of VLSI (Desi Rhoden's
18 employer) intellectual property. In other words, trial witnesses Farhad Tabrizi, Terry Lee,
19 and Desi Rhoden made no disclosures of their companies' intellectual property between 1993
20 and 1996.
- 21 59. In its June 1996 resignation letter, Rambus identified a number of patents. JEDEC did not
22 add any of those patents to the December 1996 patent tracking list. *Compare* Ex. 3120 at 2
23 *with* Ex. 8307 at 11-12.
- 24 60. As seen on both of the patent tracking list excerpts reproduced above, Toshiba suggested by
25 September of 1993 that IBM might have intellectual property rights to "BGA" or "ball grid
26 array." This confrontation produced substantial testimony at trial about how the patent
27 tracking list and any JEDEC disclosure duty functioned in practice, *e.g.*, Tr. 644:14-654:5.
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61. Following Toshiba's disclosure, IBM's representative, Gordon Kelley, responded regarding the BGA feature with an August 31, 1993 fax to JC-42.3 chairman Jim Townsend and JC-42.3 secretary Ken McGhee. *See* Ex. 6092. The subject of the fax was "BGA Patent/License Rights" and read:

Jim: IBM Intellectual Property Law attorney's [sic] have informed me that we will not use JEDEC as a forum for discussing this subject. It is the responsibility of the producer to evaluate the subject and to workout [sic] the proper use of rights. So, I can not confirm or deny any [intellectual property law] rights,
Gordon Kelley
IBM Member JC-42.3

62. Mr. Kelley testified that he believed that his response complied with his understanding of any disclosure duty. He explained that he further investigated the subject of whether IBM had patents to ball grid arrays, and his investigation uncovered 5,000 (five thousand) such patents held by IBM and relating to ball grid arrays. He "looked at the first 200 to 300 of those patents" and determined that those patents did not apply to the standard under consideration and that he told this to the JC-42.3 committee following the fax. Tr. 3605:12-3608:9; *see also* Docket No. 3508 (lodged Kelley video testimony).

63. The December 1993 JC-42.3 meeting also involved "lots of patent issues" (related to TI) and more involvement by Gordon Kelley. Tr. 654:6-656:5. The minutes state that "[a]s a side issue, IBM noted that in the future they will not come to the Committee with a list of applicable patents on standards proposals. It is up to the user of the standard to discover which patents apply." Ex. 6098 at 8.

64. Mr. Rhoden testified that with both BGA and this December 1993 disclosure, Mr. Kelley actually said to the committee that IBM would not search their patent database. This did not bother Mr. Rhoden because he understood JEDEC's policy to be that if a member does not disclose a patent, that member could not enforce the patent against the standard. Thus, Mr. Rhoden felt that IBM's declination was "no harm, no foul." Tr. 656:6-658:4. Mr. Rhoden's testimony on this point is not credible because the actual documents – the minutes and the August fax – are inconsistent with the theory that IBM did not intend to assert its BGA, or other, patents. They are also inconsistent with Mr. Kelley's "promise" to the committee that

1 he would "give you all of the information that I am aware of as the member for IBM, but I
2 cannot promise to give you all of the tens of thousands of patents that are created annually by
3 IBM Corporation." Docket No. 3508 (lodged Kelley video testimony).

4 65. Gordon Kelley also testified that he disclosed more patents and patent applications than
5 ended up on the patent tracking list. *See* Tr. 3627:9-21. Mr. Kelley admitted that he made
6 no effort to correct the minutes to reflect such additional disclosures. *Id.* 3627:22-3628:9.
7 To the extent Mr. Kelley did make disclosures on IBM's behalf that do not appear on the
8 patent tracking list, it appears that Mr. Kelley would have made those disclosures in conflict
9 with directions he received from IBM's lawyers. *See id.* 3628:10-3629:3. This might explain
10 Mr. Kelley's failure to correct the minutes, but raises the possibility that JEDEC
11 representatives like Mr. Kelley deliberately disobeyed their principals' instructions in favor
12 of JEDEC. Furthermore, his testimony calls into question the accuracy of the minutes and
13 their trustworthiness. In short, if the testimony is true, it implies that JEDEC's records are
14 deliberately incomplete and that some JEDEC representatives acted in JEDEC's interests at
15 the expense of their principals'. This is a plausible interpretation of the evidence, but the
16 court is more inclined to believe that Mr. Kelley's memory about additional disclosures was
17 incorrect, that the patent tracking list is accurate, and that JEDEC representatives like Mr.
18 Kelley did not act at cross-purposes to their lawyers. The court therefore declines to credit
19 the testimony that additional disclosures were made that were not reflected on the list.

20 66. Mr. Rhoden testified that the patent tracking list helped the committee "make appropriate
21 decisions as we're moving forward on the standards." After a critical analysis of the patent
22 tracking lists in evidence, how the lists were updated, and how many entries there are, the
23 court draws three conclusions. First, if any disclosure duty within JEDEC was as broad as
24 suggested, the patent tracking list should have been substantially longer. Second, the gaps
25 and failures to follow up on "?" entries on the list suggest that JEDEC's members did not
26 consider tracking patent issues to be terribly important. Third, the JEDEC disclosure duty
27 advocated by the Manufacturers could not have possibly accomplished the purported goal of
28

creating an "open standard" because the alleged duty was limited to the knowledge (and potential willful ignorance) of JEDEC's member representatives. Because it would have been ineffectual, it is less likely the disclosure duty advocated by the Manufacturers existed.

H. JC-42.3 Committee Members' Expectations and Recollections

67. Desi Rhoden testified that his understanding of JEDEC's patent disclosure policy was: "JEDEC members are required to disclose anything in the patent process for which they have knowledge that's relevant to or involving work for JEDEC." Tr. 481:15-19; *see id.* 473:4-13; 510:7-22. He believed such disclosures had to be made "as early as possible whenever presentations are made." *Id.* 552:23-553:8. He summarized it as "early and often" and testified that disclosures had to be repeated. *Id.* 553:9-13.

68. Richard Crisp, Rambus's representative, believed that he should disclose any patents or pending patents that he thought related to a feature if he proposed that feature, but that he also had the impression that any disclosure was voluntary. Tr. 1368:7-13; 1400:12-1401:16.

69. Richard Crisp's contemporaneous documents from his time as a JEDEC representative support the prevailing confusion about the scope of any duty. *See* Tr. 1057:22-1059:22; Ex. 3030. Exhibit 3030, an email of Mr. Crisp's reporting on a December 1992 JEDEC meeting, indicated that a patent lawyer from Bronson, Bronson, & McKinnon had come to speak to the committee and that the lawyer was unclear on what JEDEC required its members to disclose and that it would be "inadvisable" to require the disclosure of patent applications. Ex. 3030.

70. Alan Grossmeier was Cray's representative at JC-42.3 meetings from 1989 through 2000. Tr. 4704:14-4705:3. There was no indication that Mr. Grossmeier was biased in favor of either Rambus or the Manufacturers. On the other hand, Mr. Grossmeier conceded that "patent issues were not necessarily the priority for [him]" and that others at JEDEC were more interested in the requirements of the patent policy. *Id.* 4710:8-15. Taken as a whole, the court found Mr. Grossmeier's testimony credible.

71. Mr. Grossmeier recalled Jim Townsend's presentations differently than Desi Rhoden:

"Typically he would flash these slides, usually not long enough to read them. He would just kind of, these are the JEDEC patent policy and don't worry about reading them. They will be in the minutes. He would flash the, the first couple slides and then he had a tracking list of, it was humorously referred to as the squealer's list, basically." *Id.* 4707:9-20.

72. Mr. Grossmeier recalled that Mr. Townsend presented EIA's patent policy and that JEDEC was governed by EIA's patent policy. Tr. 4708:18-4709:1. He did not recall "any formal documentation" of the patent policies and "[his] interpretation was based more on how the committee members themselves handled it." *Id.* 4709:2-11.

73. Mr. Grossmeier believed that JEDEC required sponsors presenting features to disclose patents and that the rules were otherwise vague about disclosing issued patents. Tr. 4709:12-4709:25. He was adamant that patent applications did *not* have to be disclosed. *Id.* 4710:1-7 ("They were not. They were not. No, I did not expect that someone would [disclose applications].").

74. Gordon Kelley of IBM testified that he understood the JEDEC disclosure duty to require members to disclose patents and patent applications of which the member was aware that would be required for use of the patented feature. Tr. 3602:13-3603:3. He felt the need to be clear though that any duty was limited to the JEDEC representative's personal knowledge; he was not willing "to crawl through 5,000 patents" held by IBM. Docket No. 3508 (Mar. 11, 2008) (lodged video testimony of Gordon Kelley); Tr. 3620:12-16.

75. The Manufacturers also presented expert testimony from Graham Allan, an engineer who attended JC-42.3 meetings and was "very active" in setting the SDRAM, DDR, and DDR2 standards. Tr. 2578:10-2580:22. Mr. Allan represented Mosaid, a "third party designer" that does not build DRAMs; rather, Mosaid designs memory schematics for other people. *See id.* 2578:4-9; 2578:15-2579:1. Despite Mr. Allan's intimate involvement with JEDEC, the Manufacturers explicitly declined to ask him about his expectations and understanding of any disclosure duties. *See id.* 2581:12-21. Although the Manufacturers had their reasons for not asking Mr. Allan such questions, the court infers that had Mr. Allan testified on this

topic, his testimony would not have supported the broad disclosure duty urged by the Manufacturers.⁶

76. Hynix's JEDEC representative, Farhad Tabrizi, testified that his understanding of the JEDEC disclosure duty was: "The policy was you have to disclose anything that you know about your intention of patent, patent application, your intention of filing. If you don't disclose, you cannot collect later." Tr. 3722:25-3724:1. Squaring Mr. Tabrizi's testimony about his memory of the disclosure duty with his 1997 email requesting copies of "the JEDEC patent laws or part of the JEDEC bylaws that deals with patent and patent disclosure and licensing" is somewhat difficult. Mr. Tabrizi's testimony supports a broad disclosure duty based on expectations, but his writing in 1997 suggested that he (a) did not know where to find JEDEC's rules regarding patent disclosure, and (b) believed that such rules would be written down. Further, his intense bias against Rambus may have colored his testimony.
77. Micron's JEDEC representative, Terry Lee, also testified about the JEDEC disclosure duty from 1994 to 1996. *See* Tr. 3242:17-3243:25. His testimony corroborated Mr. Grossmerier's that the committee chairman Jim Townsend would take a transparency and "stick one down on the overhead and say this is the patent policy." *Id.* 3243:12-18. He described Mr. Townsend as a "colorful character" and that sometimes people would ask him questions about the policy and "Jim would usually answer them." *Id.* 3243:15-21. Mr. Lee remembered the disclosure duty as: "a requirement to disclose any patents or patent pending

⁶ The Manufacturers took this approach to avoid opening the door to evidence about Micron's litigation with Mosaid in which Micron makes similar allegations that Mosaid breached JEDEC's disclosure duty by failing to disclose information about its patent portfolio. Tr. 2376:25-2378:20; 2381:16-22.

The Manufacturers argued in their new trial motion that such an inference cannot ethically be drawn because Mr. Allan's expert report suggests that he understood the disclosure obligation at JEDEC to extend to applications and the intent to file patent applications. The court disagrees, as stated in its denial of the new trial motion. *Hynix Semiconductor Inc. v. Rambus Inc.*, 2008 WL 2951341, *9-*10 (N.D. Cal. Jul. 24, 2008).

Neither Mr. Allan's report, nor the reason the Manufacturers did not question Mr. Allan, is in evidence. The court is left with evidence that someone with first hand knowledge about the disclosure policy was not asked about it. This permits the inference drawn by the court and the court sees no ethical problem in drawing that inference. However, it is not an inference on which the court places much weight in light of the testimony of Messrs. Crisp and Grossmeier.

that may relate to the work of the committee. And the committee had the responsibility to avoid the use of the patents in the standard. And in the case that a patent was identified, then there was a requirement to provide what we called a rand licensing term, or whoever held the patent had to agree on a reasonable and non-discriminatory licensing term." *Id.* 3244:17-3245:1. In other words, Mr. Lee – a Micron witness – did not recall a duty to disclose intentions to file patent applications. He did, however, testify that he believed he had to disclose patent applications.

I. Rambus Did Not Breach Any Clearly Defined Disclosure Expectation

78. The evidence suggests that the scope of a JEDEC member's expectation of disclosure ranged from non-existent to astonishingly broad. The jury found that the JEDEC members did not share a clearly defined expectation that members would disclose relevant knowledge they had about patent applications or the intent to file patent applications:

Disclosure expectations. "Did JEDEC members share a clearly defined expectation that members would disclose relevant knowledge they had about patent applications or the intent to file patent applications on technology being considered for adoption as a JEDEC standard? No.

Special Verdict Form ¶ 45.

79. It does appear, however, that members at least expected those making sponsoring presentations to disclose any patents the sponsoring company had covering the advocated standard. The members may well have had a broader disclosure expectation. However, Mr. Rhoden's testimony suggesting that the applications Rambus had in prosecution during its membership should have been disclosed was equivocal and lacking in analysis. He testified that he believed certain applications should have been disclosed based on his reading of the claim language. Tr. 553:14-559:2. This analysis was cursory and turned on Mr. Rhoden's belief that the applications should have been disclosed because they "involved the work of JEDEC," a standard that has no clear definition or meaningful support. In any event, Rambus's alleged conduct – failing to disclose intentions to seek patents and failing to disclose certain applications it had in prosecution (which were based on the same specification that was disclosed twice to JEDEC) – did not violate any clearly defined

disclosure expectation. By the time it withdrew from JEDEC, Rambus had not filed a patent application claiming a standardized feature under consideration during its JEDEC membership.

J. Rambus's Representations at JEDEC – The 1992 SDRAM Ballot

The Manufacturers' also base their estoppel defense arising from JEDEC on the nature of the few statements Rambus actually made at JEDEC.

80. As discussed above, Rambus voted on one set of ballots involving SDRAM. The members of JC-42.3 were aware of Rambus's voting and publicly disapproved of Rambus's behavior because of their belief that Rambus was trying to stall the standardization of SDRAM.

81. In light of the narrow scope of the duty to disclose defined on the ballot, no reasonable person within JEDEC could interpret Rambus's ballots as a statement that Rambus would not seek intellectual property on matters related to the ballot.

K. Rambus's Representations at JEDEC – Richard Crisp's Head Shake

82. According to Mr. Rhoden, the JC-42.3 chairman Gordon Kelley asked Richard Crisp "if Rambus had any, any I.P. that related to any of the things that were present." Tr. 539:1-17. Mr. Rhoden testified that Mr. Crisp "just shook his head. He didn't say a word." Tr. 539:21. Mr. Rhoden testified that he personally witnessed this because he was in the room at the time. Tr. 540:4-5. Mr. Rhoden could not recall clearly when this occurred however. Tr. 538:14-19.

83. Mr. Crisp remembered the interaction differently. *See* Tr. 1138:21-1139:1. Mr. Crisp testified that "he asked me if I cared to comment." Mr. Crisp says that he declined to comment. Tr. 1138:21-1139:10. Mr. Crisp did this by shaking his head "no." Tr. 1140:7-14. Mr. Crisp also testified that no one followed up on his refusal to comment or complained that "not commenting" was forbidden. *Id.* 1347:5-1348:9.

84. Mr. Crisp sent contemporaneous emails from JEDEC meetings to other Rambus personnel. In an email he sent from this JEDEC meeting, Mr. Crisp wrote: "Siemens expressed concern over potential Rambus Patents covering 2 bank designs. Gordon Kelly [sic] of IBM asked

me if we would comment which I declined." Ex. 3412; Tr. 1144:12-23 (admitting exhibit).

85. The portions of the JEDEC minutes from the meeting in evidence contain no mention of this discussion. *See* Tr. 1128:8-13; Ex. 3003, 1-2, 30-37. The court infers from the absence of evidence in the record that the minutes lack any record of this event.

86. The deposition testimony of Gordon Kelley accords with Mr. Crisp's version of events. *See* Docket No. 3568, 379:14-380:2 ("I remember that both Motorola and Rambus were represented at that meeting and did not comment on those patents.").

87. Of the two versions of the events, the court believes Mr. Crisp's. First, his story is confirmed by contemporaneous documentation that long pre-dated any litigation. Second, Mr. Crisp's testimony is corroborated by Mr. Kelley's. Third, Mr. Crisp's testimony was consistent with Rambus's policy of not commenting. Finally, Mr. Rhoden's testimony was contradicted by the contemporaneous documentation of events, suggesting that Mr. Rhoden's memory of these events (which took place about 15 years ago) has slipped.

88. The court therefore finds that when Rambus was asked to comment about patents related to 2-bank memory architecture (a feature not at issue in this case), Rambus declined to comment. The committee did not follow up on the issue, nor consider the issue worth following with its patent tracking lists.

89. Mr. Crisp's head shake could not have been reasonably construed as a statement that Rambus lacked any form of intellectual property on the 2-bank design, let alone a statement that Rambus lacked any form of intellectual property covering any other feature under consideration.

L. Rambus's Representations at JEDEC – The '703 Patent

90. Richard Crisp disclosed one Rambus patent to the JC-42.3 committee, U.S. Patent No. 5,423,703 (Exhibit 3219). The '703 patent has the same specification as all of the patents-in-suit. The claims-in-suit, however, were not even drafted while Rambus was a member of JEDEC.

91. The '703 patent was Rambus's first issued patent. Tr. 928:5-16. Mr. Crisp was proud of

Rambus's first issued patent. *Id.* 1143:6-11. He was, however, later reprimanded by Rambus for disclosing a patent to JEDEC without authorization. *Id.* 1212:6-21.

92. Richard Crisp did not believe the patent related to JEDEC's work, but he disclosed it at the September 1993 JEDEC meeting. Tr. 928:22-931:24. Despite the patent's "unrelatedness" to the work of JEDEC, the '703 patent was placed on the patent tracking list and remained there until at least December of 1996. *See* Ex. 8307 at 11.

93. Nobody at the September 1993 JEDEC meeting followed up the '703 disclosure with questions about the patent, or the list of related applications listed on the patent. Tr. 1346:16-25.

94. Farhad Tabrizi, a Hitachi JEDEC representative and eventually Hynix's JEDEC representative, "looked at" the '703 patent but "did not analyze it." By "looked at," Mr. Tabrizi meant that he reviewed the first page, i.e., the abstract. *See* Tr. 3940:5-3941:12. The '703 patent was the only Rambus patent Farhad Tabrizi reviewed before the litigation began. *Id.* 3938:22-3939:8.

95. Mr. Crisp's disclosure of the '703 patent could have given JEDEC members the impression in 1993 that Rambus would disclose its issued patents. Rambus's later statements clarified this point. Whether or not Rambus disclosed issued patents, however, is not relevant, because the Manufacturers do not accuse Rambus of failing to disclose an issued patent.

M. Rambus's Representations at JEDEC – Rambus's SyncLink Statement

96. In May 1995, a proposal for a different DRAM architecture – SyncLink or SLDRAM – was introduced at JEDEC. Tr. 1254:2-20. Because the SyncLink proposal resembled Rambus's RDRAM,⁷ Rambus was asked whether it possessed patents related to SyncLink. *Id.* 1254:21-1255:16. Richard Crisp did not answer at that meeting, but instead consulted with his superiors at Rambus about how to answer. *Id.* The Manufacturers authenticated the minutes from this meeting through Mr. Crisp, but did not move the document into evidence

⁷ "RDRAM" or "Rambus DRAM" refers to Rambus's proprietary memory architecture that it developed in the early 1990s and that competed with JEDEC's standards and SLDRAM throughout the 1990s.

1 during Mr. Crisp's examination. *Id.* 1302:20-23. The court infers from this that nothing in
2 the minutes would bolster the Manufacturers' case.

3 97. Mr. Crisp prepared a response to the committee's concern with the help of Rambus's in-house
4 counsel, Anthony Diepenbrock. Messrs. Crisp and Diepenbrock were concerned about
5 equitable estoppel, and they prepared Rambus's response accordingly. Tr. 1256:9-1258:2. It
6 bears noting that Mr. Diepenbrock was concerned about Rambus's attendance at JEDEC, and
7 Rambus stopped attending JEDEC by the end of 1995 and formally resigned in 1996.

8 98. Accordingly, Mr. Crisp read a prepared statement at the September 1995 statement to
9 address the committee's concerns about Rambus's intellectual property and SDRAM. Tr.
10 1258:3-25; 1259:10-21. Rambus's statement to the committee, Exhibit 3090, was as follows:

11 At the last JEDEC meeting it was noted that the subject of the Synclink DRAM
12 proposal bears a strong resemblance to Rambus DRAMs and so I was asked to make
13 a comment about the Rambus intellectual property position as it may relate to the
14 Synclink proposal.

15 The first Rambus patents were filed more than five years ago, with development
16 starting years before. We have confirmed that the first Ramlink and Synclink
17 committee meetings and draft proposals occurred years after Rambus began
18 development.

19 Today there is no finalized Synclink specification or DRAMs to analyze for potential
20 infringement. Best case, it will be several years before they will exist. So to fully
21 determine Synclink patent risk, this committee should look not just to Rambus but
22 also internally.

23 For example, we are aware of 13 US patents relating to SDRAMs which were issued
24 to member companies of this committee. All were active participants in the SDRAM
25 standardization process. Included in this list are Hitachi, Mitsubishi, Mosaid,
26 Motorola, Oki, Samsung, TI, and Toshiba.

27 Additionally, Synclink is being sponsored by an organization with a less stringent
28 patent policy than JEDEC. Under the bylaws of the IEEE working groups, attendees
represent themselves only, not their employers. Furthermore they are free to patent
whatever they desire, and are not bound to relinquish any of their rights to their
patents by presenting their ideas for standardization.

Therefore, we conclude that products defined by committees are not guaranteed to
be free of patent encumbrances [sic].

At this time, Rambus elects to not make a specific comment on our intellectual
property position relative to the Synclink proposal. Our presence or silence at
committee meetings does not constitute an endorsement of any proposal under the
committee's consideration nor does it make any statement regarding potential
infringement of Rambus intellectual property.

Ex. 3090. In addition to reading the statement, Mr. Crisp showed it on the overhead and provided a copy to be included in the minutes. Tr. 1265:2-10; *accord* Tr. 1392:6-1393:4; Ex. 3224 at 26 (including Mr. Crisp's statement as Attachment C to the September 1995 minutes).

99. The committee's response to Rambus's statement was less than enthusiastic. The chairman, Gordon Kelley, responded "I heard a lot of words, but I don't know if anything was said." Tr. 1265:11-15.

100. Construed in isolation, portions of Rambus's statement could be misleading, specifically the insinuation that JEDEC had stronger rules than IEEE. Taken as a whole, however, no reasonable JEDEC member could have been misled by this statement. The statement is replete with warnings, and ends with the most clear warning of all: "Our presence or silence at committee meetings does not constitute an endorsement of any proposal under the committee's consideration nor does it make any statement regarding potential infringement of Rambus intellectual property."

101. Even were it reasonable to be misled by Mr. Crisp's statement, the JC-42.3 committee was not, as evidenced by chairman Gordon Kelley's skeptical and pointed response.

N. Rambus's Representations at JEDEC – Rambus's Resignation Letter and the Omitted Patent

102. Rambus sent its resignation letter to JEDEC on June 17, 1996. Tr. 1293:13-1294:1; Ex. 3120. The letter contained two substantive paragraphs:

Recently at JEDEC meetings the subject of Rambus patents has been raised. Rambus plans to continue to license its proprietary technology on terms that are consistent with the business plan of Rambus, and those terms may not be consistent with the terms set by standards bodies, including JEDEC. A number of major companies are already licensees of Rambus technology. We trust you will understand that Rambus reserves all rights regarding its intellectual property. Rambus does, however, encourage companies to contact Dave Mooring of Rambus to discuss licensing terms and sign up as licensees.

To the extent that anyone is interested in the patents of Rambus, I have enclosed a list of Rambus U.S. and foreign patents. Rambus has also applied for a number of additional patents in order to protect Rambus technology.

Ex. 3120 at 1.

103. The resignation letter contains a number of explicit warnings to JEDEC and JEDEC's members. First, it emphasizes that Rambus's business model and licensing plan are not necessarily the same as JEDEC's. Second, Rambus clarified that it "reserve[d] all rights regarding its intellectual property." While such a phrase is somewhat vague, it does communicate the position that Rambus did not believe it had waived any rights or intend to waive any rights. Third, it concluded with a clear statement that Rambus had a number of patent applications pending.

104. The letter also included a list of over twenty Rambus patents. Ex. 3120 at 2. The letter omitted one Rambus patent, the '327 patent, which issued on April 30, 1996. Tr. 1298:8-1299:5.

105. The omission was innocent. Rambus's outside patent attorney, Lester Vincent, generated the list of Rambus patents by doing a Lex Pat database search in March of 1996 when helping Richard Crisp prepare a draft of the resignation letter. *See* Tr. 1814:16-1817:9. Because the '327 patent issued after the database search but before Rambus sent the resignation letter, it was accidentally left off the list.

106. There is no evidence that any JEDEC member relied on the letter's list of Rambus's patents. The December 1996 tracking list does not include *any* of the patents disclosed in the letter. *See* Ex. 8307 at 11-12. No witness for any Manufacturer testified that they read or relied on Rambus's resignation letter.

O. Rambus's Representations at JEDEC – Reasons Not to Disclose Patent Applications

107. Rambus had a number of reasons for choosing not to disclose patent applications or its intentions to seek patents. Rambus's outside patent prosecutor, Lester Vincent, repeatedly advised Rambus to keep its patent applications confidential. Tr. 1634:5-8; 1707:21-1708:5. Mr. Vincent advised Rambus that disclosing its patent applications could lead others to file interferences and to give others a head start at designing around (or copying) Rambus's technology. *Id.* 1708:6-1711:6.

108. Mr. Vincent's advice to Rambus was the generic advice he gave to all of his clients. *Id.*

1711:7-13.

P. Rambus's Representations at JEDEC – Conclusions

109. Rambus made no affirmative representations that it had no intellectual property pertaining to the work of JEDEC. *See* Jury's Special Verdict ¶¶ 12, 19 and 26. Further, Rambus uttered no half-truths about its intellectual property coverage or potential coverage of products compliant with synchronous DRAM standards being considered by JEDEC. *Id.* at ¶ 31. Consistent with the jury's finding, the court agrees that Rambus made no misrepresentations and uttered no deceptive half-truths to JEDEC and its members.

Q. 1993-2000: Rambus's Dealings with Hynix: The "Other DRAM" Clause

110. Rambus contacted Hynix about licensing Rambus's technology in 1993 and began negotiations. Tr. 1847:12-21. In December 1995, Dr. Kye Hwan Oh signed a license agreement with Rambus on behalf of Hynix (then Hyundai Electronics). Tr. 1845:2-1846:24; Ex. 4028 (the license agreement).

111. While Rambus and Hynix were negotiating the license agreement, Hynix was a member of the SyncLink consortium, an organization of DRAM manufacturers seeking to develop a next-generation DRAM. Tr. 1857:22-1858:12. Rambus cautioned Hynix that a SyncLink DRAM might infringe Rambus's patents. *Id.* 1861:3-18.

112. The December 1995 agreement licensed Hynix to make Rambus's RDRAM. Tr. 1862:3-14. The agreement also licensed Hynix to make "Other DRAM," which the contract defined as: "each DRAM which incorporates part of the Rambus Interface Technology but is not Compatible with the Rambus Interface Specification." Ex. 4028 ¶ 1.5. The license set a royalty rate of 2.5% for "Other DRAMs." *Id.* ¶ 5.3(a)(ii).

113. Dr. Oh believed that "Other DRAM means SyncLink." Tr. 1862:24-1863:1; 1864:212-1865:19. He did not believe "Other DRAM" encompassed Hynix's JEDEC-standard SDRAM and did not intend to pay royalties to Rambus under the Other DRAM provision on

Hynix's SDRAM sales. *See id.* 1863:11-18.⁸ On the other hand, the clause was written without making a specific reference to SyncLink and former Rambus CEO Geoff Tate did not believe that Hynix ever told Rambus that the clause was "intended to apply only to a SyncLink device." *Id.* 3094:19-23. Mr. Tate understood the clause to be broader "[o]therwise we would have called it the SyncLink clause." *Id.* 3095:4-9.

114. The license lacked provisions dictating how the parties would decide whether an "Other DRAM" incorporates part of the Rambus Interface Technology such that Hynix would owe Rambus royalties on such a DRAM. *See generally* Ex. 4028. Rambus asked Dr. Oh whether Hynix would have paid 2.5% royalties on SyncLink DRAM sales without proof that "SyncLink infringed Rambus patents." Tr. 1908:16-1909:5. Dr. Oh's response was clear: "of course not." *Id.* 1909:5. Dr. Oh clearly affirmed again that Hynix would only have paid royalties under the Other DRAM clause if Rambus proved that the "Other DRAM" infringed a Rambus patent. *Id.* 1909:6-10; *see also* Docket No. 3578, 268:5-11, 15-17 (testimony of Hynix employee D.S. Chung that "I think that we would have refused to pay any royalty even if you had asked for that."); Tr. 5069:16-5070:6 (Hynix's refusals to admit that it would have paid royalties with respect to SDRAM and DDR SDRAM pursuant to the "Other DRAM" clause).

115. Mr. Tate's testimony suggested that Hynix perhaps should have paid even if Rambus did not have an issued patent, but he believed that "practically speaking" Rambus would have to prove the "Other DRAM" infringed a patent. *Id.* 3095:22-3096:4.

116. Rambus did not possess issued patents that read on Hynix's SDRAM in 1995. The first patent Hynix was found by the jury to infringe issued on June 22, 1999.

117. Rambus never demanded royalties from Hynix for its SDRAM and DDR SDRAM sales under the "Other DRAM" clause. Tr. 3096:6-8. According to Mr. Tate, there was a "very

⁸ Min Kwon Yoo, the Hynix employee responsible for memory technical marketing and for negotiating with Rambus three years later in 1998, admitted that at that time "I myself didn't quite understand as to what 'Other DRAMs' was in reference to, so I asked the folks at Rambus about that, but didn't really get a straight answer." Docket No. 3322, 12:1-13:3; 43:2-43:8 (video testimony).

small number of months, two or three months, where we had issued patents and the, this contract was in effect[.]" *Id.* 3096:21-23.

R. 1993-2000: Rambus's Dealings with Hynix: Negotiations About Amending the "Other DRAM" Provision

118. In April 1998, a dispute arose between Hynix and Rambus regarding whether Hynix was complying with the license and making its "best efforts" to manufacture and market Rambus's RDRAM memories. *See* Exs. 3226; 3228 (correspondence between Mr. Yoo and Deepak Mithani, Rambus's then-Director of Business Development).⁹

119. In June 1998, Hynix and Rambus met to discuss issues related to Hynix's efforts to develop and promote RDRAM. *See* Ex. 3229. In exchange for excusing Hynix's obligations with respect to RDRAM, Rambus proposed "removing the clause on 'Other DRAMs.'" *Id.*

120. July of 1998 saw further negotiations regarding the "Other DRAM" clause. Docket No. 3322, 44:8-11; 53:16-54:1. At a meeting on July 6, Hynix shared its product roadmap with Rambus and revealed its intentions and timeline for developing and selling SDRAM, DDR SDRAM, Rambus's concurrent RDRAM and SyncLink (or "SLDRAM"). *Id.* 60:9-61:15; Ex. 3238. Following the meeting, Rambus responded with another proposal for modifying the "Other DRAM" clause. *Id.* 74:22-75:5; Ex. 3156.

121. Rambus's letter proposed amending the agreement's royalty rate provision for "Other DRAMs" to read "an 'Other DRAM Product' means a particular type of Other DRAM (e.g., if otherwise within the definition of Other DRAM, each of a SDRAM, DDR SDRAM, and SLDRAM would be a separate Other Dram [sic] Product, regardless of density). The royalty rate for each Other DRAM Product shall be negotiated separately by the parties upon Hyundai's first Sale of that Other DRAM Product[.]" Ex. 3156 at 2. Notwithstanding the timing of the proposal, Mr. Yoo testified that there was "none whatsoever" discussion of SDRAM, DDR, or SLDRAM being "Other DRAM" at the July 6 meeting. Docket No. 3322, 76:6-76:10.

⁹ Various trial exhibits corresponding to documents used in Mr. Yoo's depositions were admitted into evidence. *See* Tr. 2177:5-2179:8.

- 1 122. Hynix responded to the proposed changes to the "Other DRAM clause" and found them
2 "difficult to accept." Ex. 3239. Hynix explained that under Rambus's proposal, if a dispute
3 arose as to whether a Hynix DRAM incorporated "Rambus Interface Technology" (and thus
4 would be an "Other DRAM" under the license), Hynix would "always bear the burden to
5 prove that it has not made use of the Rambus Interface Technology in every future DRAM
6 product developed by itself if Rambus should simply assert [Hynix's] use of Rambus
7 Interface Technology." *Id.* at 1-2. Hynix believed that "[n]o one will treat this language as
8 fair or consistent with the License Agreement." *Id.* at 2.
- 9 123. Hynix further explained that it believed Rambus had been hesitant to grant the Other DRAM
10 clause, and that "SLDRAM, DDR SDRAM, and Synchronous DRAMs might be counted as
11 Other DRAMs from the perspective of Rambus." *Id.* at 2; *accord* Tr. 3094:6-13 (former
12 Rambus CEO Geoff Tate testified that the "Other DRAM" clause "was a concession that we
13 made very reluctantly"). The following lines are significant, but their meaning is unclear:
14 "Undoubtedly, [Hynix] has been, and will be, willing and ready to protect Rambus' valuable
15 intellectual properties developed with huge amount of money and time invested.
16 Nonetheless, please be reminded that Rambus already withdrew from its initial position that
17 it eventually granted [Hynix] the license that Rambus Interface Technology could be
18 incorporated by [Hynix] into the competitive DRAM products, including, but not limited to,
19 SLDRAM, DDR and Synchronous DRAMs, as well, subject to [Hynix] paying running
20 royalties calculated at the rate of 2.5%. We believe that [Hynix] shall not be required to
21 concede any more in terms of the running royalty rates applicable to Other DRAMs." *Id.* It
22 is not clear what the middle line means. One interpretation is that Hynix is conceding that
23 SDRAM and DDR SDRAM are covered and should be subject to a 2.5% royalty, and no
24 more. Another interpretation is that Hynix is reminding Rambus that Rambus withdrew its
25 contention that SDRAM and DDR SDRAM were "Other DRAMs."
- 26 124. That aside, Mr. Yoo stated that by the time Hynix saw Rambus's July 10 proposal and
27 responded with its letter, Hynix knew that Rambus believed that SDRAM and DDR SDRAM
28

used "Rambus Interface Technology" and that Rambus believed Hynix owed Rambus royalties under the "Other DRAM" clause. Docket No. 3322, 124:10-14; 124:17-126:25. Mr. Yoo responded that Hynix took no action, however, because Hynix did not believe that SDRAM and DDR SDRAM used "Rambus Interface Technology" and were not "Other DRAMs." *Id.* 127:1-5, 9-12. Mr. Yoo also expressed disappointment that Rambus had not shared this interpretation of the "Other DRAM" clause in 1997 when Hynix began work on those products because Hynix might then have "taken certain measures to do things differently." *Id.* 129:6-9; 129:12-130:5.

125. There is no evidence of how Rambus responded to Hynix's rejection of the proposed amendment to the "Other DRAM" clause. In August of 1999, Rambus internally considered looking into how much it stood to gain if Hynix were to pay royalties under the "Other DRAM" clause for DDR SDRAM. Tr. 3636:19-3638:10; Ex. 3163. The tone of the Rambus email – Exhibit 3163 – suggests that Rambus did not believe Hynix would pay royalties on DDR SDRAM pursuant to the "Other DRAM" clause.

126. In 1999, Hynix (then Hyundai) merged with LG Electronics, which also had a license with Rambus. The resulting entity operated under LG's version of the license, and this version of the license lacked an "Other DRAM" clause. Tr. 3096:9-15.

S. 1993-2000: Rambus's Dealings with Hynix: Understanding of the Parties Regarding the Meaning of the "Other DRAM" Clause

127. The parties' decision to word the "Other DRAM" clause such that it was not explicitly limited to SyncLink, and Rambus's reluctance in granting the provision at all, suggest that Hynix in 1995 understood, or should have realized, that Rambus's intellectual property coverage might one day extend to SDRAM and other designs Hynix might pursue.

128. By 1998, Rambus and Hynix were both aware that the other side possessed a different understanding of the scope of "Rambus Interface Technology" and of the universe of products covered by the "Other DRAM" clause.

129. Hynix's unwillingness to pay royalties under the clause without proof of infringement was known to Rambus and explains Rambus's failure to press Hynix for royalties. Furthermore,

Rambus's desire to encourage Hynix to produce RDRAM explains its unwillingness at the time to push Hynix on the "Other DRAM" clause.

130. Hynix was not misled about the possible scope of Rambus's patent portfolio by Rambus's failure to seek royalty payments. On the contrary, Hynix suspected that Rambus might have patent coverage of products like SDRAM in 1995 when it sought the expansive language in the "Other DRAM" clause and knew that Rambus believed it would have patents covering SDRAM and DDR SDRAM by the middle of 1998.

T. 1995-2000: Rambus's Dealings with Micron – The December 1995 Meeting

131. Terry Lee, Micron's JC-42.3 representative, first met with Rambus in December 1995 at Micron's facility in Boise. Tr. 3149:18-22; 3152:16-21. Mr. Lee, Gene Cloud (VP of marketing), Kevin Ryan, and Jeff Mailloux represented Micron at the meeting. *Id.* 3152:22-3153:2. The meeting was called to discuss an RDRAM license. *See id.* 3153:6-14. Rambus had contacted Micron to license it as an RDRAM manufacturer. *Id.* 3153: 6-10.

132. To prepare for the meeting, Mr. Lee downloaded information from Rambus's website because he "didn't know too much about Rambus." Tr. 3153:15-23. Mr. Lee also reviewed a collection of Rambus's patents' abstracts. Tr. 3153:24-3154:2.

133. Rambus presented its RDRAM technology to Micron at the meeting. Tr. 3158:16-22. At no point did Rambus indicate anything about SDRAM. *Id.* 3158:23-3159:9. Rambus did not disclose whether or not it was seeking patents on SDRAM. *Id.* 3159:7-9.

134. The meeting ended with Micron declining to take an RDRAM license. *Id.* 3159:10-15.

U. 1995-2000: Rambus's Dealings with Micron – The December 1996 Meeting

135. Micron (represented by Mr. Lee, Kevin Ryan, Jeff Mailloux, and Gene Cloud) next met with Rambus and Intel in December 1996. Tr. 3159:16-3160:6. At this point, Rambus had resigned from JEDEC. Intel had announced that it had selected Rambus's RDRAM design as the next memory that would work with the chips Intel designed. *Id.* 3160:14-23. The purpose of the meeting was to license Micron to manufacture RDRAM. *Id.* 3161:4-21.

136. SDRAM was not discussed at the meeting. Tr. 3162:8-15.

137. Micron entered into an RDRAM license with Rambus around March of 1997. Tr. 3163:12-18.

V. 1995-2000: Rambus's Dealings with Micron – Rambus Did Not Mislead Micron

138. Rambus did not make any misrepresentations or utter any half-truths about the scope of its intellectual property during its RDRAM license negotiations with Micron. *See* Special Verdict Form ¶¶ 19, 31.

W. Nanya's Failed RDRAM Negotiations

139. Nanya Technology Corp. was formed around 1995. It founded its subsidiary, Nanya Technology Corp. USA, in 1997. *Id.* 2730:9-12. Nanya formed its American subsidiary to sell JEDEC-standard DRAMs. *Id.* 2741:3-23.

140. Rambus met with Ken Hurley (the founder of Nanya USA) in late 1998 to discuss an RDRAM license. Tr. 2749:13-2750:4. The negotiations lasted about a year. *Id.* 2750:10-2752:3.

141. At no point did Rambus advise Nanya that Rambus believed that its JEDEC-standard DRAMs were infringing Rambus patents. Tr. 2750:10-2752:3. However, Nanya only began selling some infringing SDRAM at the end of 1998. *Id.* 2752:3-23. It began selling DDR SDRAM "in the 2000 time frame." In other words, when Rambus first negotiated with Nanya, Nanya did not sell any infringing devices. As negotiations progressed, Nanya began to sell some infringing SDRAM. At no point in Nanya's negotiations with Rambus did Nanya sell infringing DDR SDRAM.

142. Mr. Hurley confirmed that during these negotiations, he was *not* told that Rambus's intellectual property was limited to RDRAM and he was *not* told what Rambus's intellectual property did cover. Tr. 2763:18-2764:3.

143. Mr. Hurley first learned that Rambus believed its patents covered SDRAM and DDR SDRAM when he read about Rambus's litigation against Hitachi in early 2000. Tr. 2765:9-2766:7. Despite learning about this litigation in 2000, Mr. Hurley was not aware of any steps taken by Nanya (a) to determine if it needed a license from Rambus, and (b) to develop a

1 non-infringing DRAM. *Id.* 2777:6-20.

2 144. Rambus sued Nanya alleging that Nanya's DDR2 SDRAM infringed Rambus's patents in
3 January 2005. Rambus accused Nanya's SDRAM and DDR SDRAM of infringement in its
4 counterclaims in reply in July 2007. Tr. 2754:23-2756:2.

5 145. Nanya did not rely to its detriment on any misrepresentation or concealment by Rambus of
6 its patent coverage of SDRAM and DDR SDRAM or on the fact that Rambus delayed in
7 instituting suit against Nanya. *See* Special Verdict Form ¶¶ 26, 31.

8 **X. Jury's Findings from Conduct Trial Adopted by Court**

9 146. The Conduct Trial commenced before a jury selected on January 31, 2008 and concluded on
10 March 26, 2008 when the jury rendered its Special Verdict. The jury found in favor of
11 Rambus on each of the Manufacturers' claims submitted to it. Special Verdict Form (Docket
12 No. 3613, *Hynix Semiconductor, Inc. v. Rambus Inc.*, C-00-20905-RMW).

13 147. The jury found that the six technology markets alleged by the Manufacturers existed (latency
14 technology market, burst length technology market, data acceleration technology market,
15 clock synchronization technology market, precharge technology market, and write latency
16 technology market) (*id.* at ¶ 1) but that Rambus did not commit anticompetitive conduct in
17 any of the six technology markets. *Id.* at ¶ 8; *see also* ¶ 4.

18 148. The jury also found that Rambus did not make important representations that it did not have
19 any intellectual property pertaining to the work of JEDEC and intend or reasonably expect
20 that the representations would be heard by or repeated to others including Hynix, Micron and
21 Nanya. *Id.* at ¶¶ 12, 19, and 26.

22 149. In addition, the jury found that Rambus did not utter half-truths about its intellectual property
23 coverage or potential coverage of products compliant with synchronous DRAM standards
24 then being considered by JEDEC by disclosing some facts but failing to disclose other
25 important facts, making the disclosure deceptive. *Id.* at ¶ 31.

26 150. Finally, the jury found that JEDEC members did not share a clearly defined expectation that
27 members would disclose relevant knowledge they had about patent applications or the intent
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1 to file patent applications on technology being considered for adoption as a JEDEC standard.

2 *Id.* at ¶ 45.

3 III. CONCLUSIONS OF LAW

4 A. The Seventh Amendment Requirement to Adopt Jury's Factual Findings

5 The Seventh Amendment requires the court to apply the jury's "implicit [and] explicit factual
6 determinations" when ruling on equitable claims that are "based on the same facts" as the legal
7 claims tried to the jury. *Los Angeles Police Protective League v. Gates*, 995 F.2d 1469, 1473 (9th
8 Cir. 1993). Because of the substantial factual overlap between the claims tried to the jury and the
9 Manufacturers' equitable claims and defenses, the court therefore adopts the findings of the jury.

10 B. Unfair Competition (Cal. Bus. & Prof. Code § 17200 et seq.)

11 All three Manufacturers claim that Rambus engaged in unfair competition in violation of
12 California Business & Profession Code §17200. That statute defines "unfair competition" as "any
13 unlawful, unfair, or fraudulent business act or practice." Cal. Bus. Prof. Code. §17200. "[I]t
14 establishes three varieties of unfair competition – acts or practices which are unlawful, or unfair, or
15 fraudulent." *Cel-Tech Commc'ns, Inc. v. Los Angeles Cellular Tel. Co.*, 20 Cal. 4th 163, 180 (1999).
16 "Although the unfair competition law is broadly written to permit courts to restrain dishonest or
17 unfair business dealings, the scope of the law is not unlimited. 'Courts may not simply impose their
18 own notions of the day as to what is fair or unfair.'" *Scripps Clinic v. Superior Court*, 108 Cal. App.
19 4th 917, 938 (2003) (quoting *Cel-Tech*, 20 Cal 4th at 180).

20 The Manufacturers described their § 17200 claims in the Joint Case Management Conference
21 Statement dated July 31, 2007. Hynix said: "Claim arises out of Rambus's anticompetitive conduct
22 at JEDEC; the continuing exercise of its unlawful monopoly and deception outside of JEDEC; and
23 Rambus's conduct arising out of the Rambus/Hynix RDRAM relationship." Attachment 1 to 7/31/07
24 PTC Stmt. Nanya similarly described the claim: "This claim arises, without limitation, out of
25 Rambus's anticompetitive conduct at JEDEC; the continuing exercise of its unlawful monopoly and
26 deception outside of JEDEC including its enforcement of patents known to be invalid; and Rambus's
27 conduct during the course of its relationships with the DRAM manufacturers, and others."

Attachment 3 to 7/31/07 PTC Stmt.¹⁰ Micron gave an essentially identical description: "This arises, without limitation, out of Rambus's anticompetitive conduct at JEDEC; and the continuing exercise of its unlawful monopoly and deception outside of JEDEC." Attachment 2 to 7/31/07 PTC Stmt.

To support their § 17200 claims, the Manufacturers focused on attempting to show that Rambus failed to disclose its intent to seek patent coverage of the DRAM standards being considered by JEDEC. The jury's findings defeat any claim by the Manufacturers that Rambus's conduct was "unlawful" or "fraudulent," specifically the findings: (1) that Rambus did not commit anticompetitive conduct in any of the six technology markets (Finding of Fact 147 ("FOF __")); (2) that Rambus did not make any misrepresentations about having intellectual property pertaining to the work of JEDEC (FOF 148); (3) that Rambus did not utter half-truths about its intellectual property coverage or potential coverage of products compliant with synchronous DRAM standards then being considered by JEDEC (FOF 149); and (4) that JEDEC members did not share a clearly defined expectation that members would disclose patent applications or the intent to file patent applications on technology being considered for adoption as a JEDEC standard. (FOF 150).

The Manufacturers, nonetheless, assert that the evidence showed that Rambus's conduct was "unfair" and violated § 17200. The California Supreme Court has set the standard for establishing a violation of § 17200 by an "unfair" act or practice.

When a plaintiff who claims to have suffered injury from a direct competitor's "unfair" act or practice invokes section 17200, the word "unfair" in that section means conduct that threatens an incipient violation of an antitrust law, or violates the policy or spirit of one of those laws because its effects are comparable to or the same as a violation of the law, or otherwise significantly threatens or harms competition.

Cel-Tech., 20 Cal. 4th at 187. Since the jury found that Rambus's conduct was not anti-competitive and that JEDEC members did not have a clearly defined expectation of disclosure, Rambus's failure to disclose cannot be considered "unfair." Not only did Rambus not have an obligation to disclose pending or anticipated patent applications, it had sound reasons for not doing so. As advised by counsel, Rambus understood that patent applications were confidential and that disclosure of the

¹⁰ Any claim by Nanya that the PTO issued patents to Rambus which Rambus knew were invalid but yet attempted to enforce was not included in the trial and reserved by Nanya for later resolution.

1 contents of an application before a patent actually issued exposed the applicant to various risks or
2 claims. (FOF 107-08). In light of the jury's findings and the evidence presented, the court concludes
3 that the Manufacturers failed to establish that Rambus violated § 17200 by its conduct before
4 JEDEC.

5 The totality of the evidence concerning a disclosure duty showed that, as the jury found,
6 there was no clearly understood agreement of JEDEC members to disclose patent applications or the
7 intent to seek patents relevant to standards being discussed at JEDEC. The strongest evidence of
8 such an obligation appears in section 9.3.1 of Manual 21-I dated "October 1993" which may or may
9 not have been adopted and distributed. (FOF 18-28). Even if adopted and distributed, the purported
10 obligation in Manual 21-I goes further than any contemporaneous disclosure request or requirement
11 recited in sign-in sheets (refer only to "patented item" (FOF 30; *see* 29-32)), printed on ballots ("if
12 anyone receiving this ballot is aware of patents involving this ballot, please alert the committee
13 accordingly during your voting response" (FOF 35; *see* 33-40)), or contained in the meeting minutes
14 (FOF 41-47; *see, e.g.* FOF 43-44 which refers to disclosure by "presentation sponsors"). In any
15 event, nothing ever required a JEDEC member to reveal an intent to file for a patent in the future.
16 *See Rambus, Inc. v. Infineon Techs. AG*, 318 F.3d 1081, 1102 (Fed. Cir. 2003) (holding on a similar
17 record "that the record supports only the conclusion that a member's intentions to file or amend
18 applications do not fall within the scope of JEDEC's disclosure duty.").

19 The testimony of JEDEC members concerning any disclosure obligations was varied and, in
20 some cases, inconsistent, thus bolstering the conclusion that there was no clearly defined disclosure
21 obligation at least with respect to a member's patent applications or intentions to file for patents in
22 the future. *See, e.g.*, FOF 73 (Grossmeier); 75 (Tabrizi). The relatively modest length and static
23 nature of the patent tracking list also suggests that JEDEC members were not generally disclosing
24 patent applications or even making much effort to disclose their companies' relevant patents. The
25 minutes of the December 1991 committee meeting, the first that Rambus attended and the meeting at
26 which the tracking list was introduced, described the list's purpose: "The purpose was only to track
27 and identify items of Committee proposals. Companies who hold patents identified can respond to
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Committee, *if they wish*." FOF 49 (emphasis added). The subsequent development of the list seems consistent with this purpose and not with a broader disclosure obligation.

At the time of its withdrawal from JEDEC, Rambus had not even applied for any of the patents-in-suit. *See* FOF 5-6. Accordingly, the court concludes that the Manufacturers are not entitled to recover on their unfair competition claims. *See also infra* § III-E (Equitable Estoppel).

C. Fraud

Nanya was the only Manufacturer whose fraud claim was tried to the court. Although the jury's verdict as to the fraud issues was only advisory as to Nanya, the court accepts the advisory verdict. The evidence did not support a finding of any material misrepresentation, half truths or fraudulent concealment by Rambus related to JEDEC upon which Nanya relied.

D. Prosecution Laches

The Manufacturers did not put on evidence relevant to their prosecution laches defenses. For example, the Manufacturers did not call either of their two disclosed expert witnesses (Gerald Mossinghoff and R. Polk Wagner) on prosecution laches. This absence led Rambus to move for judgment as a matter of law. Tr. 4066:3-8; Docket No. 3444 (Mar. 10, 2008). Following Rambus's motion, the Manufacturers indicated that they did not "intend to proceed with the prosecution laches part of the case." *Id.* 4511:4-12.

The only evidence related to Rambus's patent prosecution came from its patent attorney in the mid-nineties, Lester Vincent. Nothing in his testimony established that Rambus unduly delayed in prosecuting the claims in suit.

E. Equitable Estoppel

1. Elements of Equitable Estoppel

All the Manufacturers assert the doctrine of equitable estoppel as a bar to Rambus's claims for patent infringement.

Equitable estoppel, which bars a patentee from receiving relief, consists of three elements: (i) the patentee must communicate to the accused infringer (by words, conduct or silence) that the patentee will not pursue an infringement claim; (ii) the accused infringer must rely on that communication; and (iii) the accused infringer must establish that it would be materially prejudiced if the patentee is now permitted to proceed with the infringement claim.

B. Braun Med., Inc. v. Abbott Labs., 124 F.3d 1419, 1425 (Fed. Cir. 1997); *see A. C. Aukerman Co. v. R. L. Chaides Const. Co.*, 960 F.2d 1020 (Fed. Cir. 1992). Silence alone will not create an estoppel unless there is a clear duty to speak or somehow the patentee's continued silence reinforces the defendant's belief that the defendant will be unmolested. *Id.* at 1043-44; *see also Hemstreet v. Computer Entry Sys. Corp.*, 972 F.2d 1290, 1295 (Fed. Cir. 1992) ("mere silence must be accompanied by some other factor which indicates that the silence was sufficiently misleading as to amount to bad faith"). Even if the three elements are met, the court must take into consideration all other evidence respecting the equities of the parties in exercising its discretion in deciding whether to allow the defense to bar the suit. *Id.* at 1043.

2. Burden of Proof

Except where equitable estoppel is based solely upon intentional fraud, the burden of proof is the preponderance of evidence. "[W]hile the facts relied upon to establish equitable estoppel must be clear, positive, and unequivocal in their implication, these facts need not be established by any more than a fair preponderance of the evidence." *Aukerman Co.*, 960 F.2d at 1046.

3. Equitable Estoppel Based Upon Rambus's Participation in JEDEC

All the Manufacturers assert that Rambus's words, conduct and silence in connection with its participation in JEDEC communicated an intent by Rambus not to enforce the patents-in-suit. Although the Manufacturers did offer some evidence supporting an obligation by JEDEC members to make disclosures concerning their patents relevant to any standard being considered, the evidence was not persuasive that there was any understanding among members that they had to disclose pending patent applications or the intent to file such applications. The jury specifically found that JEDEC members did *not* share a clearly defined expectation that such disclosures would be made (FOF 150).

The recent case of *Qualcomm Inc. v. Broadcom Corp.*, 548 F.3d 1004 (Fed. Cir. 2008) involved similar issues but is factually distinguishable in several critical ways. It held that Qualcomm had a duty to disclose the existence of patents it owned that "reasonably might be necessary" to practice the standard being considered by the standards setting organization of which it

1 was a member. The court found that Qualcomm participated in the standard setting during the time
 2 the relevant standard was being considered despite Qualcomm's denials and affirmative attempts to
 3 conceal that participation. The court found that not only the written policies of the SSO required
 4 disclosure (*id.* at 1012-15) but that the understanding among the members required disclosure of
 5 patents that reasonably might be necessary to practice the standard. *Id.* at 1015-17. The court
 6 further found that Qualcomm's intentional nondisclosure in face of the duty to speak constituted an
 7 implied waiver of the right to assert infringement. *Id.* at 1019-22. It also suggested that such
 8 conduct would result in a defense of equitable estoppel, but did not remand the action for
 9 consideration of that defense since there had been an implied waiver.

10 The instant case is distinguishable from *Qualcomm* in the following material ways. First, the
 11 written JEDEC disclosure policies did not clearly require members to disclose information about
 12 patent applications and the intent to file applications in the future and there is no indication that
 13 members ever legally agreed to do so. FOF 14-77; *see Infineon*, 318 F.3d at 1098. In *Infineon*, a
 14 case involving similar claims against Rambus based upon its involvement with JEDEC, the court
 15 observed "there is a staggering lack of defining details in the EIA/JEDEC patent policy." 318 F.3d
 16 1081, 1102 (Fed. Cir. 2003). Similarly, in *Rambus Inc. v. F.T.C.*, 522 F. 3d 456, 462 (D.C. Cir.
 17 2008), the D.C. Circuit commented in reversing the Federal Trade Commission's finding that
 18 Rambus, as a member of JEDEC, had engaged in an unfair method of competition and unfair or
 19 deceptive acts or practices prohibited by § 5(a) of the FTC Act:

20 We . . . conclude that the Commission failed to demonstrate that Rambus's conduct
 21 was exclusionary under settled principles of antitrust law. Given that conclusion, we
 22 need not dwell very long on the substantiality of the evidence, which we address
 only to express our serious concerns about the breadth the Commission ascribed to
 JEDEC's disclosure policies and their relation to what Rambus did or did not
 disclose.

23 *Id.* at 462.

24 Second, the jury in this case expressly found that JEDEC members did not share a clearly
 25 defined expectation that members would disclose relevant knowledge they had about patent
 26 applications or the intent to file patent applications on technology being considered for adoption as
 27 a JEDEC standard. The evidence supported that finding (FOF 67-79).

1 Third, Qualcomm failed to disclose existing patents which it intentionally concealed. The
2 patent-at-issue in this case had not even been applied for during Rambus's membership in JEDEC.
3 The only suggestion that other patents that Rambus had obtained or applied for might reasonably
4 have been of interest to JEDEC came from Mr. Rhoden who was both vague and not convincing in
5 his testimony on the subject (FOF 67, 82).

6 However, an estoppel may be found even though the party estopped did not actually intend
7 to mislead or to defraud the other person. *See A.C. Aukerman Co.*, 960 F.2d at 1044, fn 18. The
8 Manufacturers assert that in addition to Rambus's knowledge that at least some members of JEDEC
9 believed there was an obligation to disclose, Rambus was aware that JEDEC had taken adverse
10 action against Wang and Texas Instruments for their failures to disclose. However, both those
11 situations involved affirmative conduct at JEDEC and the failure to disclose relevant, issued patents
12 and not mere silence about an intent to obtain future patents with particular coverage.

13 Rambus's involvement at JEDEC was primarily through Richard Crisp, Rambus's
14 representative at JEDEC. Essentially, his only outward expressions of significance were his
15 negative shake of his head at a May 1992 JEDEC meeting when Rambus was asked if it cared to
16 comment on specific patent issues (FOF 82-89), his disclosure of the '703 patent in 1993 (FOF 90-
17 95) and his reading of a letter dated September 12, 1995 at a JEDEC meeting concerning Rambus's
18 refusal to comment on potential patent coverage of the SyncLink design (FOF 96-101). Mr. Crisp
19 did not discuss non-public Rambus intellectual property at JEDEC, nor did he actively advocate
20 adopting the standards JEDEC eventually adopted. Further, at the time Mr. Crisp attended his last
21 meeting of JEDEC in late 1995 (Rambus officially withdrew in June 1996), Rambus did not have
22 any patent application pending that covered a JEDEC standard and it was months before it did.
23 (FOF 5-6).

24 The Manufacturers' suggestion that Rambus misled JEDEC's members when Mr. Crisp read
25 the letter wherein Rambus responded to a question about Synclink, a type of DRAM being
26 developed that bore a strong resemblance to Rambus DRAMs, is not persuasive. *See Ex. 3090*. In
27 the letter Rambus noted that Synclink was being sponsored by an organization with a less stringent
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1 patent policy than JEDEC. *Id.* At the close of the letter Rambus stated that it “elects to not make a
2 specific comment on our intellectual property position relative to the Synclink proposal. Our
3 presence or silence at committee meetings does not constitute an endorsement of any proposal under
4 the committee’s consideration nor does it make any statement regarding potential infringement of
5 Rambus intellectual property.” *Id.* The Manufacturers suggest that this comment about Synclink
6 implied that Rambus did not have intellectual property that covered standards that were being
7 developed at JEDEC. Since Rambus was responding to a question raised specifically about
8 Synclink, it is not reasonable to infer that Rambus was commenting beyond Synclink or that patents
9 it might obtain in the future would cover DRAMs built in accordance with standards then being
10 developed by JEDEC. Further, the last sentence of the letter is consistent with Rambus’s policy of
11 not commenting on potential infringement of Rambus’s intellectual property.

12 **4. Estoppel Based On the "Other DRAM" Clause in Hynix License**

13 Hynix contends that Rambus’s silence during its licensing negotiations with Rambus
14 resulting in the December 1995 licensing agreement between Hynix and Rambus supports its
15 asserted defense of equitable estoppel. In particular, Hynix contends that Rambus's silence about the
16 scope of its intellectual property in light of the inclusion of the "Other DRAM" clause in the
17 agreement misled the company into believing that the "Other DRAM" clause would not require
18 Hynix to pay royalties on SDRAMs or DDR SDRAMs incorporating Rambus's inventions and that
19 Rambus should therefore be estopped from enforcing its patent rights against Hynix for these
20 products. However, Hynix offered little more than a statement by its former Executive Vice
21 President for Semiconductors, Dr. Kye-hwan Oh, that "Other DRAM means Synclink." (FOF 110-
22 130). Although he insisted that Hynix understood that "Other DRAM" carried this specific meaning,
23 Dr. Oh could not explain why the 1995 licensing agreement never refers to Synclink. His credibility
24 on this issue was questionable. Moreover, Dr. Oh acknowledged that, at the time of the negotiations
25 with Rambus, he was aware of Rambus's royalty-based business model and knew Rambus had 40
26 patent applications related to its technologies, that he had read about Rambus's inventions in the
27 international and trade press, and that it was a common practice for companies seeking to protect
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1 their intellectual property to file broad applications. Although it may well be that Hynix did not
2 appreciate the extent of Rambus's intellectual property at the time, its failure to appreciate the scope
3 does not mean that Rambus communicated to Hynix that it would not pursue an infringement claim.
4 Accordingly, Hynix has failed to establish the first element of its equitable estoppel claim by a
5 preponderance of the evidence.

6 **5. Estoppel Based on Conduct with Micron Outside of JEDEC**

7 In their Proposed Findings of Fact and Conclusions of Law, the Manufacturers propose as
8 Finding of Fact 194 that "Rambus's conduct and communications with Micron outside of JEDEC
9 were also deceptive and misleading." However, they do not explain what particular conduct or
10 communications were deceptive or misleading.

11 In December 1995 Rambus met with Micron and presented its RDRAM technology in the
12 hope of being able to license that technology to Micron. No agreement was reached. There was no
13 discussion concerning SDRAM and no reason for Rambus to discuss its patenting intentions with
14 Micron. (FOF 131-134).

15 Micron next met with Rambus and Intel in December 1996. (FOF 135-137). At this point,
16 Rambus had resigned from JEDEC and Intel had announced that it had selected Rambus's RDRAM
17 design as the next memory that would work with the chips Intel designed. The purpose of the
18 meeting was to license Micron to manufacture direct RDRAM. Micron entered into a license with
19 Rambus around March of 1997. SDRAM was not discussed at the December 1996 meeting, and
20 Rambus did not suggest that it had patent rights that extended to SDRAM.

21 Neither Rambus's conduct nor communications with Micron with respect to RDRAM was
22 misleading nor did the relationship between them create any obligation on Rambus's part to disclose
23 its intent to obtain patent coverage (FOF 138). Rambus is not estopped from asserting its
24 infringement claims based upon any conduct toward or communications with Micron.

25 **6. Estoppel Based on Conduct with Nanya Outside JEDEC**

26 Nanya dropped any claim for equitable estoppel other than with respect to Rambus's conduct
27 at JEDEC. Tr. 803:24-804:5.

F. Waiver Defenses

1. Waiver Based Upon Participation in JEDEC

The Manufacturers contend that Rambus's "misleading omissions and unfair conduct as a whole" manifested a waiver of its right to sue for infringement. *See* Manu. Brf. Re: Clms. and Def. at 15. The Manufacturers focus on the same evidence as they do for their claim of equitable estoppel—Rambus's participation in JEDEC and its failure to disclose its intent to obtain patents covering the JEDEC standard. Nanya asserts that Rambus's failure to file suit against it until 2005 further supports a finding of waiver, particularly in light of Rambus's failure to reveal its intent from 1998 to 2000 when Rambus unsuccessfully negotiated an RDRAM licensing agreement with Nanya. Although often discussed together, waiver and equitable estoppel are separate concepts with different requirements.

Waiver always rests upon intent. Waiver is the intentional relinquishment of a known right after knowledge of the facts. The burden, moreover, is on the party claiming a waiver of a right to prove it by clear and convincing evidence that does not leave the matter to speculation, and doubtful cases will be decided against a waiver.

DRG/Beverly Hills, Ltd. v. Chopstix Dim Sum Café & Takeout III, Ltd., 30 Cal. App. 4th 54, 60 (1994).

Rambus's conduct at JEDEC, and specifically its alleged failure to comply with the alleged JEDEC disclosure policy, did not constitute a waiver of its rights to enforce its patents. The Manufacturers' evidence did not show clearly and convincingly, or even by a preponderance of the evidence, that Rambus's conduct at JEDEC manifested an intent to relinquish any right to sue for infringement of any patents it should later obtain. As the jury found, there was no clearly defined expectation that patent applications or anticipated applications would be disclosed. Rambus's refusal to comment on its intellectual property tends to negate any inference that its silence manifested an intent to relinquish. Moreover, the Manufacturers failed to establish that Rambus's conduct at JEDEC violated any "clear duty to speak" that might have implied a waiver. *See Kaha v. Allstate Ins. Co.*, 140 Cal. App. 4th 1023, 1034 (2006).

2. Nanya's Waiver Defense

Nanya's waiver defense focuses on the delay between the alleged abandonment of licensing

negotiations between Rambus and Nanya for SDRAM in April 2001 (evidence of such negotiations is lacking) and April 2004 when Rambus contacted Nanya about infringement. An infringement suit was filed by Rambus against Nanya on January 25, 2005. Between April 2001 and April 2004 Nanya claims to have spent millions of dollars producing JEDEC compliant DRAM products. These facts do not establish that Rambus in any way intended to relinquish any patent rights. In fact, during that time Rambus was in, or had been in, litigation with other DRAM manufacturers which was public knowledge and illustrated that Rambus intended to pursue infringement claims. Also, many of the patents asserted against Nanya did not issue until after April 2001 thus showing Rambus filed suit within a short time after many of the patents issued.¹¹ Further, there is no evidence suggesting that Nanya would have done anything differently had it been sued in 2001 rather than 2005. Nanya's waiver defense lacks both evidentiary and legal support.

G. Patent Misuse Defenses Asserted By Nanya and Micron

Nanya and Micron assert that Rambus's patent claims are not enforceable because Rambus engaged in patent misuse. The patent misuse defense in this consolidated proceeding appears to be based upon Rambus's alleged anticompetitive conduct in failing to disclose patent applications and intended applications to JEDEC and then asserting the patents after they issued.¹² Patent misuse "arises from the equitable doctrine of unclean hands, and relates generally to the use of patent rights to obtain or to coerce an unfair commercial advantage." *C.R. Bard, Inc. v. M3 Sys., Inc.*, 157 F.3d 1340, 1372 (Fed. Cir. 1998). "The key inquiry is whether, by imposing conditions that derive their force from the patent, the patentee has impermissibly broadened the scope of the patent grant with anticompetitive effect." *Id.* The Federal Circuit has cautioned that the defense not be read broadly to capture any generally-alleged "wrongful" use of patents. *Id.* at 1373 ("Although the defense of patent misuse . . . evolved to protect against 'wrongful' use of patents, the catalog of practices labeled 'patent misuse' does not include a general notion of 'wrongful' use."). Rather, the defense is

¹¹ The latest patent-in-suit was U.S. Patent No. 6,751,696 issued June 15, 2004.

¹² Nanya's patent misuse defense base upon Rambus's alleged procurement of the patents-in-suit by fraud on the patent office was not tried in this phase of the lawsuit Rambus brought against Nanya and is reserved for later resolution.

generally directed towards conduct that "affect[s] competition in unpatented goods or that otherwise extend[s] the economic effect beyond the scope of the patent grant." *Id.* Since Micron and Nanya base that their patent misuse defense on the same allegations as their antitrust and unfair competition claims and since those claims were not proved, the defense necessarily fails.

H. Micron's Claim of an Implied License

Micron alleges as a defense that it had an implied license to use Rambus's patents. This defense is asserted on the theory that Rambus either waived its right to assert the patents-in-suit or that it is equitably estopped from doing so. "In patent law, an implied license merely signifies a patentee's waiver of the statutory right to exclude others from making, using, or selling the patented invention." *Wang Labs., Inc. v. Mitsubishi Electronics America, Inc.*, 103 F.3d 1571, 1580 (Fed. Cir. 1997). An implied license can also arise from conduct that supports a finding of equitable estoppel. *Id.* at 1580-2. Since Micron failed to prove that Rambus either waived its right to enforce its patents or is estopped from attempting to enforce them, Micron cannot claim it has an implied license.

I. Laches

All of the Manufacturers assert the defense of laches. Nanya contends that Rambus unreasonably delayed in bringing suit against it following the termination of licensing negotiations between them. The only evidence of negotiations between Rambus and Nanya involved RDRAM and occurred in the late 1990's. However, what Nanya's papers appear to allege is unreasonable delay between April of 2001 (when there were purportedly negotiations for SDRAM and DDR SDRAM) and April of 2004.

A defendant, in order to invoke the defense of laches, must prove: "(1) [that] the plaintiff delayed filing suit for an unreasonable and inexcusable length of time from the time the plaintiff knew or reasonably should have known of its claim against the defendant, and (2) [that] the delay operated to the prejudice or injury of the defendant." *A.C. Aukerman Co. v. R.L. Chaides Constr. Co.*, 960 F.2d 1020, 1032 (Fed. Cir. 1992) (en banc). A presumption of laches arises "upon proof that the patentee delayed filing suit for more than six years after actual or constructive knowledge of the defendant's alleged infringing activity." *Id.* at 1035-36.

Symantec Corp. v. Computer Associates Int'l, Inc., 522 F.3d 1279, 1294 (Fed. Cir. 2008).

Nanya's evidence fails to show that Rambus unreasonably delayed in bringing suit against

1 Nanya. The earliest issue date of a patent selected by Rambus for assertion against Nanya is January
2 30, 2001 (the issue date of the '184 patent) and the latest is June 24, 2004 (the issue date of the '696
3 patent). Although calculation should probably be made from the date Rambus knew of its claim
4 under the '696 patent, even if Rambus knew of its claim under the '184 patent the day it issued and if
5 that is the beginning date for calculating laches, the delay in bringing suit was not unreasonable or
6 inexcusable. *See Meyer v. Asics Corp.*, 974 F.2d 1304, 1307 (Fed. Cir. 1992) (suggesting time runs
7 from the latest issue date of the patents on which suit is brought). Further, Nanya made no showing
8 of reliance to its prejudice on any statement or conduct of Rambus.

9 Hynix and Micron do not appear to be seriously pursuing laches as a separate defense. They
10 offered no proposed Findings of Fact and Conclusions of Law directed to the defense. In the July
11 31, 2007 Joint Case Management Conference Statement Hynix said its defense is based upon
12 "Rambus's deception of the industry as to the scope of its proprietary technology, including the
13 conduct arising out of the Rambus/Hynix RDRAM relationship." July 31, 2007 Joint Case
14 Management Conference Statement Attachment 1 at 2:24-27. Micron set forth its defense as
15 "Rambus's failure to timely assert claims for patent infringement and its deception regarding its
16 alleged proprietary technology." *Id.*, Attachment 2 at 5:20-25. The court believes that Hynix and
17 Micron are just putting another label on their equitable estoppel defense that Rambus should be
18 barred from suing for infringement for its allegedly misleading conduct concerning its patenting
19 intentions during the time it was a member of JEDEC and during licensing negotiations. Neither
20 Hynix nor Micron, to the extent either is relying on a laches defense, has explained or marshaled the
21 evidence supporting the defense.

22 The Manufacturers' laches defenses fail.

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1 **J. Unenforceability and Unclean Hands**

2 Finally, Hynix asserts a defense of unclean hands, distinct from Rambus's alleged spoliation,
3 arising from Rambus's conduct discussed above. Micron and Nanya seek a declaratory judgment
4 that Rambus's patents are unenforceable based on Rambus's conduct. In light of the jury's verdict
5 and the court's findings, there is no basis for the unclean hands defense or unenforceability claim.

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7 DATED: 3/3/2009



8 RONALD M. WHYTE
9 United States District Judge
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Notice of this document has been electronically sent to:

counsel in C-05-00334, C-06-00244, C-00-20905.

		Appearances:			
		05-00334	05-02298	06-00244	00-20905
Counsel	Email				
Rambus:					
Kathryn Kalb Anderson	Kate.Anderson@mto.com	x		x	
Peter A. Detre	detrepa@mto.com	x	x	x	x
Erin C. Dougherty	erin.dougherty@mto.com	x	x	x	x
Sean Eskovitz	sean.eskovitz@mto.com	x	x	x	x
Burton Alexander Gross	Burton.Gross@mto.com	x	x	x	x
Keith Rhoderic Dhu Hamilton, II	keith.hamilton@mto.com	x	x	x	x
Pierre J. Hubert	phubert@mckoolsmith.com	x	x	x	x
Andrea Jill Weiss Jeffries	Andrea.Jeffries@mto.com	x	x	x	
Miriam Kim	Miriam.Kim@mto.com	x	x	x	x
Carolyn Hoecker Luedtke	carolyn.luedtke@mto.com	x	x	x	x
Steven McCall Perry	steven.perry@mto.com	x	x	x	x
Jennifer Lynn Polse	jen.polse@mto.com	x	x	x	x
Matthew Thomas Powers	mpowers@sidley.com	x			
Rollin Andrew Ransom	rransom@sidley.com	x	x	x	x
Rosemarie Theresa Ring	rose.ring@mto.com	x	x	x	x
Gregory P. Stone	gregory.stone@mto.com	x	x	x	x
Craig N. Tolliver	ctolliver@mckoolsmith.com	x	x	x	x
Donald Ward	Bill.Ward@mto.com	x	x	x	
David C. Yang	david.yang@mto.com	x	x	x	x
Douglas A. Cawley	dcawley@mckoolsmith.com			x	
Scott L Cole	scole@mckoolsmith.com			x	
William Hans Baumgartner, Jr	wbaumgartner@sidley.com				x
Scott W. Hejny	shejny@sidley.com				x
Kelly Max Klaus	kelly.klaus@mto.com				x
Catherine Rajwani	crajwani@sidley.com				x
Thomas N Tarnay	ttarnay@sidley.com				x
Hynix:					
Theodore G. Brown , III	tgbrown@townsend.com	x	x	x	x
Daniel J. Furniss	djfurniss@townsend.com	x			x
Joseph A. Greco	jagreco@townsend.com	x			x
Julie Jinsook Han	JHHan@townsend.com	x	x	x	
Tomomi Katherine Harkey	tharkey@omm.com	x			x
Jordan Trent Jones	jtjones@townsend.com	x			x
Patrick Lynch	plynch@omm.com	x			x
Kenneth Lee Nissly	kennissly@omm.com	x		x	x
Kenneth Ryan O'Rourke	korourke@omm.com	x			x
Belinda Martinez Vega	bvega@omm.com	x	x	x	x
Geoffrey Hurndall Yost	gyost@thelenreid.com	x	x	x	x
Susan Gregory van Keulen	svankeulen@omm.com	x		x	x
Allen Ruby	ruby@allenrubylaw.com				x
Micron:					
Robert Jason Becher	robertbecher@quinnemanuel.com	x		x	x

United States District Court

For the Northern District of California

1	John D Beynon	john.beynon@weil.com	x	x	x	x
	Jared Bobrow	jared.bobrow@weil.com	x	x	x	x
2	Yonaton M Rosenzweig	yonirosenzweig@quinnemanuel.com	x		x	x
	Harold Avrum Barza	halbarza@quinnemanuel.com			x	
3	Linda Jane Brewer	lindabrewer@quinnemanuel.com			x	
	Aaron Bennett Craig	aaroncraig@quinnemanuel.com			x	x
4	Leeron Kalay	kalay@fr.com			x	
	David J. Lender	david.lender@weil.com			x	
5	Rachael Lynn Ballard McCracken	rachaelmccracken@quinnemanuel.com			x	
	Sven Raz	sven.raz@weil.com			x	
6	David J. Ruderman	davidruderman@quinnemanuel.com			x	
7	Elizabeth Stotland Weiswasser	elizabeth.weiswasser@weil.com			x	
8	Nanya:					
	Jason Sheffield Angell	jangell@orrick.com	x	x	x	x
9	Kristin Sarah Cornuelle	kcornuelle@orrick.com	x	x	x	
	Chester Wren-Ming Day	cday@orrick.com	x			
10	Jan Ellen Ellard	jellard@orrick.com	x		x	
	Vickie L. Feeman	vfeeman@orrick.com	x	x	x	
11	Robert E. Freitas	rfreitas@orrick.com	x			
	Craig R. Kaufman	hlee@orrick.com	x			
12	Hao Li	hli@orrick.com	x			
	Cathy Yunshan Lui	clui@orrick.com	x			
13	Theresa E. Norton	tnorton@orrick.com	x			
	Mark Shean	mshean@orrick.com	x			
14	Kaiwen Tseng	ktseng@orrick.com	x			
15	Samsung:					
	Steven S. Cherenksy	steven.cherenksy@weil.com	x	x		
16	Dana Prescott Kenned Powers	dana.powers@weil.com	x	x	x	
	Matthew Douglas Powers	matthew.powers@weil.com , matthew.antonelli@weil.com	x	x		
17	Edward Robert Reines	Edward.Reines@weil.com	x	x		x
18	United States Dept. of Justice					
19	May Lee Heye	may.hey@usdoj.gov				x
	Eugene S. Litvinoff	eugene.litvinoff@usdoj.gov				x
20	Niall Edmund Lynch	Niall.Lynch@USDOJ.GOV				x

Counsel are responsible for distributing copies of this document to co-counsel that have not registered for e-filing under the court's CM/ECF program in each action.

Dated: 3/3/2009

TSF
Chambers of Judge Whyte